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1964

STATE DOCUMENTS

JOB COMPLETION REPORT
INVESTIGATIONS PROJECT

State of Montana Name Wildlife Investigations, District Two
Project No. W-72-R-9 Title Big Game Surveys and Investigations
Job No. A-1 District-wide
Period Covered July 1, 1963 - June 30, 1964

ABSTRACT:

Grass condition transects on some important elk ranges were examined. An improving trend was found on the Bitterroot and Blackfoot-Clearwater Game Ranges, and on Baldy Mountain near Lincoln. The Lewis and Clark Pass area on Alice Creek was in very poor condition and showed no improvement because of heavy elk use. Newly-established transects on the State Prison Ranch showed rough fescue to be in poor condition.

Grass utilization checks showed light to moderate use on the Bitterroot and Blackfoot-Clearwater game ranges, Baldy Mountain, Rock Creek, Stewart Lake, and Modesty-Antelope ridge. Excessive use by elk occurred at Lewis and Clark Pass, the Prison Ranch, Story Creek and Ross Fork.

Horseback range inspections in Bitterroot areas showed improvement in range conditions and moderate use by elk on Camp-Reimel ridge, Shirley Mountain, Tolan ridge and Skalkaho Basin. Range conditions were unsatisfactory because of heavy use by game or livestock on North Skalkaho, Little Sleeping Child-Blacktail, East Fork Piquette Creek, Overwhich Creek and Warm Springs-Porcupine Creek.

Browse utilization during the 1963-64 winter was greater than during the two preceding winters. Leader use (by frequency) averaged approximately 45 percent each in the Clark Fork, Bitterroot and Deer Lodge units, and 60 percent in the Blackfoot Unit. Browse condition remained "poor" in the Clark Fork, Blackfoot and Deer Lodge units, and "fair" in the Bitterroot.

Totals of 395 elk, 219 mule deer, and 22 black bear were checked at Darby in 1963. These figures represent fewer elk, slightly more mule deer, and more bear than in 1962. At the Bonner station 156 elk, 170 mule deer, 125 white-tailed deer and 5 bears were checked. These figures represent more elk, slightly more mule deer, fewer white-tails, and the same number of bear as in 1962. Unseasonably mild weather throughout the hunting season is believed to have curtailed the deer and elk harvest.

Questionnaire data indicated a district-wide harvest of 6935 deer, 3841 elk, 296 bears, 10 bighorn sheep, 9 antelope, 77 moose, and 115 mountain goats. The deer and elk harvest was somewhat lower than in 1962, while the bear harvest was higher. Approximately the same number of goats and sheep, but fewer moose, were killed in 1963.

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District-wide deer hunting success was 48 percent in 1963, approximately the same as in 1962. Hunting success improved in the Clark Fork and Blackfoot units, and declined in the Deer Lodge and Bitterroot units.

Elk hunting success was 20 percent, district-wide, in 1963--approximately the same as 1962.

Both questionnaire and checking station data indicated more antlered deer were taken than antlerless. Both sexes of elk were taken in approximately equal numbers. Bulls predominated in the harvest during early season periods, while more cows were taken during late season periods.

Reports from guides and outfitters indicated the success of their clients declined for the second consecutive year.

Classification count samples of live animals consisted of 1120 elk, 942 white-tailed deer, and 901 mule deer. Age ratios, during fall and early winter were 68 fawns per 100 does for white-tailed deer, and 58 for mule deer. Sex ratios during the comparable period were 25 bucks per 100 does for white-tails, and 53 for mule deer. Age ratios for the entire winter period were 54 fawns per 100 adults for white-tails and 43 for mule deer. Elk ratios were 29 bulls per 100 cows, 46 calves per 100 cows and 65 spike bulls per 100 older bulls.

Aerial elk counts were attempted chiefly in the portion of the Bitterroot drainage east of Highway 93. A total of 1149 was counted in this area, compared to 801 in 1963, and an all-time high of 1604 in 1958.

Cursory aerial observations in the Blackfoot and Deer Lodge units yielded higher elk counts than in 1962 and 1963, but lower than in 1958.

Returns received from tagged indigenous elk were 2 from the Bitterroot Unit and 6 from the Blackfoot.

Returns from transplanted Yellowstone elk were 6 from transplants at Olson Gulch, 8 from the Prison Ranch plant, and 10 from the Brock Creek-Warm Springs Creek plants.

Additional releases of Yellowstone elk were made during the year at Olson Gulch (33) and on the Blackfoot-Clearwater Game Range (72).

Trapping and tagging of native elk was resumed in the Bitterroot during the 1963-64 winter. Totals of 23 elk and 16 mule deer were marked and released at the trap sites.

Game damage to private property was more prevalent during the 1963-64 winter than during the previous year. Complaints of damage to haystacks, orchards, and other property involved 3 cases of deer damage and 8 cases of elk damage.

OBJECTIVES:

To obtain quantitative data for the management of big game species in District Two. Information concerning range conditions, big game distribution, population condition and trend, and harvest will be collected in a

systematic manner. The data will be tabulated and presented in reports for use by the Commission in setting big game seasons.

TECHNIQUES USED:

Range surveys were conducted according to standardized procedures in the Department's Range Survey Guide. General range inspections and appraisal of range conditions were performed in certain areas.

Classified counts of deer and elk were made during the fall, winter and early spring to determine the production and survival of young. Classification of elk was performed chiefly by helicopter counts. Aerial trend counts with fixed-wing aircraft were made in some areas.

Checking stations were operated in three management units to collect data on harvest trend and sex-age composition.

Total harvest figures for District Two and each hunting district were obtained from statewide questionnaire returns. Additional harvest data were taken from outfitters' reports.

A dead deer count was made in the 480 acre sample area near Salmon Lake to ascertain the relative winter loss of deer.

Inspections were made of proposed Yellowstone elk transplant sites, and two transplants were made.

FINDINGS:

RANGE

Grassland Condition and Utilization

Condition, trend and utilization data for some of the key grassland elk ranges in District Two are shown in Tables 1 and 2.

The transect on the Bitterroot Game Range showed improvement in Idaho fescue plants from fair to excellent condition in two years. Utilization on this transect has been light since it was established in 1961.

The two transects on the Blackfoot-Clearwater Game Range showed improvement in the condition of rough fescue between 1961 and 1963. The lower transect, #274, has sustained lighter use, and shows more improvement than the upper one, #245.

Baldy Mountain, south of Lincoln, has been lightly used during the past two years and the rough fescue condition has improved from poor to fair since 1957.

The condition of rough fescue in the Lewis & Clark Pass area of the Alice Creek drainage is very poor. This area had heavy elk use in 1962, very light use in 1963, and extremely heavy use in 1964. Cattle use in this area is now limited to their passage through it, to and from the Alice Creek bottomland. The top of the ridge between Telephone Gulch and the Pass road was the location most heavily used by elk in 1964. Pellet

groups numbered 1320 per acre on this ridge-top and 820 per acre at the transect site. Areas of exposed soil, with resulting erosion, are evident on the south-facing slopes. Blue bunch wheat grass (*Agropyron spicatum*), the prevailing species on the south slopes, was also heavily used in 1964.

Three transects were established on the high parks on the State Prison Ranch. The condition of rough fescue on two sites rated poor and very poor, while Idaho fescue on the third transect rated fair. Utilization by elk was excessive on all three sites in 1964. Cattle use in the area was light in 1963. Utilization checks made August 14 showed less than 10 percent use on all three sites. The Prison Ranch management is tolerant of the present elk herd, but does not want any increase. The manager is trying to improve the range by reducing cattle use. Any increase in the elk herd would tend to defeat this objective. For this reason no further transplants of Yellowstone elk should be made until the elk use is much lighter and the grass condition has improved considerably.

Utilization checks in other portions of the Deer Lodge Unit indicated moderate use of grass by elk on Big Hogback Creek (Rock Creek), in the Fred Burg-Stewart Lake area (west slope of Flint Creek Range) and Modesty-Antelope Creek ridge (north of Anaconda). Excessive use was found in Stony Creek and Ross Fork (both in the Rock Creek drainage).

Range Inspections

Horseback range inspections of several Bitterroot areas were made in cooperation with the Forest Service and representatives of sportsmen groups. These areas have a history of chronic over-use by game and livestock and they have been inspected periodically by Forest Service and Fish & Game personnel over a period of 10 or more years. A summary of the 1964 observations follows:

North Skalkaho:

Portions of the Skalkaho-Gird Creek ridge had heavy use by cattle during the summer, and by elk and deer during the winter and spring. The abundance of weeds and annual grasses indicate unsatisfactory range conditions. Browse, chiefly bitterbrush, was heavily used. The steep slopes in Brennan and Coffee gulches were in better condition with native bunch grass predominating. Land ownership is private around the lower end of the ridge, and National Forest above the private land. Ridge tops and creek bottoms where cattle tended to concentrate were the locations most heavily grazed. Much of the game use occurs on private land. A pellet group count on a private pasture numbered 180 deer and 40 elk pellet groups per acre. Bitterbrush in this area showed 51 percent leader use, and 53 percent of the plants were heavily hedged.

Skalkaho Basins

This elk summer range was visited in June, 1963 and a range cage constructed in a grassy basin near a small shallow natural lake. The area was revisited in September and utilization was checked by clipping inside and outside the cage. The results indicated moderate use (25%). An additional cage was built approximately one mile southwest of the first cage in another grassy park. Utilization will be checked again in September, 1964.

Range conditions appeared to be better, and elk use lighter, in this area in 1963 than in 1962, when a similar inspection was made.

Little Sleeping Child - Blacktail:

This area has been heavily used by game and livestock for many years. Range conditions were generally unsatisfactory, with considerable cheat-grass on south-facing slopes. Utilization of browse (bitterbrush) exceeded 50 percent in Jack Creek. Most of the area of heaviest use is on private land. Both deer and elk use the area in the winter. Considerable girdling of bitterbrush by mice occurred during the past winter.

Shook Mountain:

Browse use by elk and deer was excessive in the East Fork of Piquette Creek. Ceanothus is being killed out by game use in portions of the drainage, and some die-back of this species because of weather-kill occurred in the 1962-63 winter. Serviceberry and chokecherry were also heavily used by game. Little evidence of livestock use was seen. The soil condition is poor on many of the south slopes.

Overwhich - Cow Creek:

Inside the Jew Mountain enclosure a slow, but noticeable recovery of the vegetation is occurring. Outside, a combination of horse use and elk use on the south slopes is keeping the vegetation and soil in an unstable condition.

The grassy southwest slope above Blue Creek showed very heavy use by elk. Pellet groups numbered 400 elk and 10 deer groups per acre. Both old and new growth of blue bunch wheat grass and Idaho fescue had been heavily utilized.

Use on the higher parks on Cow Creek was relatively light. On the lower portion of the ridge however, combined elk and horse use has been heavy enough during past years to eliminate most of the bunch grasses. Recent utilization had also been heavy enough to remove most of last year's growth of vegetation.

Camp - Reimel:

Elk and deer use was moderate over the whole area. Elk were still present and a new-born calf was found in the horse pasture. Grass clippings from range cages on Wallace ridge showed moderate use (27 percent). Range conditions are improving and appear to be generally satisfactory.

Shirley Mountain:

Deer and elk use appeared generally moderate, with some localized sites of heavier use. A pellet group count yielded 290 elk and 40 deer groups per acre. With the exception of the south exposures in Grouse Gulch, most of the range appears to have improved within the past few years. Grass utilization by elk in Grouse Gulch was relatively heavy during the past winter.

Tolan Ridge:

Range conditions were fairly good, although some cheat grass was present on south exposures. Some ridge-top locations were used quite heavily by elk and livestock. Elk use was heavier on the steep southwest faces of the lower parks. One such location yielded a count of 220 elk and 60 deer pellet groups per acre.

Warm Springs:

Heavy cattle use and light, but general, deer and elk use was found on the ridges and moist sites on the Fire Creek burn. Browse was sparse and heavily used. A pellet group count yielded 180 elk and 60 deer pellet groups per acre.

On the south-facing slope of Porcupine Creek, moderate to heavy use of grass and sedge by both elk and cattle was found. Browse (serviceberry) was heavily hedged on the windswept ridges, but in better condition lower down the slopes.

Browse Condition and Utilization

The results of the 1964 browse surveys by individual transects are shown in Table 3. A summary, by hunting districts, is shown in Table 4.

Browse utilization during the 1963-64 winter was relatively high. Heavy snowfall began in mid-January and lasted into May. The deep snow-cover, combined with a relatively low harvest of deer and elk during the 1963 hunting season, concentrated more use on winter range areas than during the previous winter.

Because of the deep, persistent snow, the winter was judged to be about normal, despite the lack of severe cold spells. Browse utilization exceeding 50 percent by frequency of the 1963 increment of leaders was therefore considered excessive.

Average leader use for the Clark Fork Unit in 1964 was 46 percent, compared to 22 percent in 1963. The average browse condition in the unit rated "poor" in each of the three years, 1962-1964. Hunting district 20 was the most heavily used in 1964, with average leader use of 64 percent. Districts 21 and 22 had approximately 45 percent leader use. District 23 was moderately utilized with 34 percent leader use. Browse condition rated "poor" in districts 20, 21 and 22, and "fair" in district 23. Areas of excessive use by districts in 1964 were:

<u>District</u>	<u>Location</u>	<u>% Class 3 & 6</u>	<u>% Use</u>	<u>Principal class of game</u>
20	Tamarack Creek	32	68	elk
	St. Regis Cut-off (2)	58	81	deer
	Patrick Creek	54	79	deer
	Boyd Mountain (2)	38	91	deer
	Fourmile Creek	88	80	deer, elk
	Freezeout Gulch	44	86	deer
	Nigger Gulch	84	90+	deer

Areas of excessive use by districts in 1964: (continued)

<u>District</u>	<u>Location</u>	<u>% Class 3 & 6</u>	<u>% Use</u>	<u>Principal class of game</u>
20	Eddy Creek	40	69	deer
	Kitchen Creek	50	82	deer
	Soudan	20	75	deer
21	Six-mile Creek	52	48	deer
	Cayuse Hill	80	88	deer
22	Thompson Creek	48	63	deer
	Whiskey Gulch	24	58	deer
	Trout Creek burn	84	87	deer
	Johnson Ranch	64	41	deer, elk
	Dry Creek (2)	62	57	deer, elk
	Cold Creek (2)	18	53	deer, elk
	Thompson Peak	8	54	deer
	Wall Creek	8	61	deer
23	Upper West Fork Butte Cr. (2)	75	62	deer, elk
	Camp Creek	72	52	deer
	Bear Run Creek	6	68	deer
	Burdette Creek (3)	56	70	elk

The average leader use for the Bitterroot Unit was 45 percent, compared to 13 percent in 1963. The average browse condition rated "fair", with a slight downward trend since 1962. Good annual growth in 1962, followed by very light use in 1963, probably unduly affected the condition rating (excellent) given in 1963. Districts 24 and 27 both sustained leader use of approximately 54 percent. Utilization in districts 25 and 26 were moderate. Browse condition rated "fair" in all four districts. Areas of excessive use in 1964 were:

<u>District</u>	<u>Location</u>	<u>% Class 3 & 6</u>	<u>% Use</u>	<u>Principal class of game</u>
24	Larry Creek	36	90	deer, elk
	Smith Creek	14	74	deer, elk
	Roaring Lion	20	53	deer, elk
	Lost Horse	46	80	deer
	Bear Creek	44	71	deer
25	Chaffin Creek	50	56	deer, elk
	Trapper	16	75	deer, elk
	East Fork Piquette Creek	88	60	elk
26	Skalkaho Creek	52	51	deer, elk
27	East Fork (2)	38	72	deer
	Spring Gulch (Sula Peak)	84	89	deer, elk
	Spring Gulch (Rye Creek)	24	54	elk
	Harlan Gulch	12	71	deer, elk

In the Blackfoot Unit, the average leader use was 59 percent compared to 34 percent in 1963. The browse condition class was "poor" in each of the three years, 1962-64. Utilization in each of the hunting districts was between 50 and 60 percent. The browse condition was "poor" in all of the hunting districts.

Areas of excessive use in 1964 were:

<u>District</u>	<u>Location</u>	<u>% Class 3 & 6</u>	<u>% Use</u>	<u>Principal class of game</u>
28	Rattlesnake Creek	70	90	deer
	Marco Flat	68	59	deer
	Sheep Flats	64	95	deer
	Lower Woodchuck Gulch	80	49	deer, elk
	Camp Nine (2 transects)	22	89	deer
	B-C Game Range (3 transects)	35	66	deer, elk
	Salmon Lake Hills	44	81	deer
	Shanley Creek	23	59	deer, elk
	Ovando Mountain	32	66	elk
	McCabe Creek	46	56	elk
280	McDermott Creek	24	59	elk
	Dry Fork (2 transects)	14	71	elk
281	Markham Mountain	24	80	deer
	Lower Lincoln Canyon	76	77	deer
29	Nevada Creek (2 transects)	37	55	deer
	Nimrod	36	89	deer
	Rattler Gulch	84	55	deer
	Hoover Creek	88	80	deer
	Carter Creek	96	53	deer
	Warm Springs Creek	92	55	deer
	Lower Poorman Creek	12	58	deer

In the Deer Lodge Unit, browse leader use averaged 46 percent compared to 20 percent in 1963. The condition class was "poor" for each year, 1962-64. Utilization was moderate in districts 210, 213 and 214, but excessive in districts 212 and 215. Browse condition was "poor" in districts 210 and 213, and "very poor" in districts 212, 214 and 215. Areas of excessive use in 1964 were:

<u>District</u>	<u>Location</u>	<u>% Class 3 & 6</u>	<u>% Use</u>	<u>Principal class of game</u>
210	Schwartz Creek	30	88	deer
	Kitchen Gulch	20	88	deer
	Welcome Creek	50	40	deer
	Picket Gulch	44	43	deer
	Boulder Creek	92	89	deer
212	Racetrack Creek	76	48	deer
	Lost Creek	48	53	deer
215	Dry Cottonwood (2)	90	78	deer
	Little Blackfoot	56	62	deer

HARVEST

Checking Station

Checking stations were operated at Frenchtown, Lolo, Darby, and Bonner during the fall of 1963. The data from the Frenchtown and Lolo stations are shown in the A-2 report.

The number of big game animals checked through the Darby and Bonner stations are shown in Table 5.

Totals of 395 elk, 219 mule deer, 3 whitetailed deer and 22 bear were checked at Darby. Fewer elk were checked in 1963 than in either 1962 or 1961. Slightly more mule deer were checked in 1963 than in 1962, but the number was still much lower than in 1961. The number of whitetails checked was small, and declined from preceding years. The number of bears checked (22) was considerably higher than in previous years.

At the Bonner station, totals of 156 elk, 170 mule deer, 125 white-tailed deer and 5 black bear were checked. More elk, slightly more mule deer, fewer whitetails, and the same number of bear were checked in 1963, compared to 1962.

The distribution of the big game harvest in the four segments of the upper Bitterroot area are shown in Table 6. These data show that the elk harvest in the Triangle and West Fork segments was somewhat higher than in the two preceding years. In the East Fork and Rye Creek segments, the elk harvest was considerably lower than in 1961 and 1962. The deer harvest has been stable in the West Fork and Triangle areas for the past three seasons, but it was much lower in 1962 and 1963 in the East Fork and Rye Creek than in 1961.

The distribution of the elk harvest by time periods in the upper Bitterroot is shown in Table 7. A major portion of the harvest (35%) was taken during the early season. A nearly equal portion (34%) was taken during the late season. More bulls than cows were taken during the early and general season, while twice as many cows as bulls were killed during the late season.

Approximately half the deer taken in the upper Bitterroot were killed during the early season and half during the general season. There was no late deer season. The sex ratio pattern by time periods shows a reversal from that of the elk. Bucks outnumbered does slightly in the early season and more than 2 to 1 during the general season.

Composition of the elk and deer kill in the upper Bitterroot drainage is shown in Table 9. The 1963 elk harvest consisted of 42% bulls, 39% cows, and 19% calves. The calf-cow ratio was 47 calves per 100 cows, the highest proportion of calves during the past 3 years.

The composition of the Bitterroot mule deer harvest was 57 percent bucks, 34 percent does, and 9 percent fawns.

At the Bonner station, cow elk slightly outnumbered bulls, and calves comprised 19 percent of the harvest (Table 8). The mule deer harvest was 56 percent bucks, 34 percent does and 11 percent fawns. The whitetail harvest was 42 percent bucks, 33 percent does and 25 percent fawns.

Samples of significant numbers of elk and deer were aged by dentition at the Bonner station. These indicated that the bulk of the harvest of adults consisted of prime and yearling animals. Only 2 percent of elk, and 5 percent of mule deer were classed as being of old-age. The proportion of old-aged whitetails was higher (17%).

Smaller samples from the Bitterroot also indicated low percentages of old-aged elk and mule deer.

Questionnaire Harvest Data

The District Two 1963 big game harvest from questionnaire returns was 6935 deer, 3841 elk, 296 bear, 10 bighorn sheep, 9 antelope, 77 moose and 115 mountain goats. The deer and elk harvest was somewhat lower than in 1962, while the bear harvest was higher. Approximately the same number of goats and sheep, but fewer moose, were killed in 1963.

Deer Harvest

Deer harvest data by hunting districts are shown in Table 12. The number of deer hunters was 14,411, which is nearly 2000 less than in 1962, and 1000 less than in 1961. The number of hunters declined in all units except the Blackfoot, where hunter numbers increased.

The harvest of 6935 deer represents a hunting success of 48 percent. This compares to 47 percent in 1962 and 68 percent in 1961. Hunting success improved in the Clark Fork and Blackfoot units, and declined in the Bitterroot and Deer Lodge units.

The number of deer harvested increased somewhat in the Clark Fork and Blackfoot units and declined in the Bitterroot and Deer Lodge units. Hunting districts showing increased deer harvest were 21, 23, 28, 29, 280 and 281.

Non-resident hunters took only 6 percent of the deer harvested in District Two.

Harvest density was .69 deer per square mile, compared to .77 in 1962. Districts 21 and 281 with kills of 1.5 or more per square mile had the highest harvest densities.

A distribution of the 1963 dates of deer kills is shown in Table 14. According to this tabulation, Oct. 29 - Nov. 11 was the most productive for hunters, as 38 percent of the deer harvest occurred during this period. The harvest pattern was similar to 1962, except that fewer deer were taken in early and late periods. This was because fewer areas were open to early hunting and there were no extended deer seasons in 1963.

Antler class and species composition of the 1962 and 1963 deer harvest is shown in Table 16. In 1963, 29 percent of the deer shot were antlered (bucks) while 41 percent were antlerless (does and fawns). Sixty-five percent were mule deer, while 35 percent were white-tails. These figures are almost identical with the 1962 data.

Elk Harvest

Elk harvest questionnaire data by hunting districts are shown in Table 13. The total number of elk hunters in District Two in 1963 was 19,103, indicating a small decline since 1962, but still considerably more hunters than in 1961. Elk hunters increased to 6619 in the Blackfoot Unit in 1963, making it the heaviest-hunted unit in District Two.

The district-wide elk harvest, 3841 was approximately 300 less than in 1962. Declines occurred in the Clark Fork and Bitterroot Units, while the harvest increased somewhat in the Blackfoot and Deer Lodge units. The Bitterroot, with a kill of 1162, had the highest elk kill in 1963, but was closely followed by the Clark Fork unit.

Non-resident hunters took 9.5 percent of the elk harvest in 1963. This proportion was somewhat higher in the Bitterroot Unit, where non-residents took 14.7 percent of the elk harvest. In hunting district 25 (West Fork) 24 percent of the elk harvest was taken by non-resident hunters.

Elk hunting success was 20 percent in 1963, compared to 21 in 1962, and 33 in 1961. Hunting success was approximately 25 percent in the Clark Fork and Bitterroot units, and 16 percent in the Blackfoot and Deer Lodge units.

Thirty-two percent of the elk kill was made during the period Nov. 12-24. This was also the period of greatest kill in 1962. Fewer elk were taken in early and late seasons in 1963 than in the corresponding periods in 1962. The switch from an early season to a general season opening in district 22 cut down the elk harvest during the early period.

Reported sex-age composition of the 1963 elk harvest was 46 percent bulls, 41 percent cows and 13 percent calves (Table 17). The proportion of bulls was somewhat higher and cows, lower, than in 1962. The sex ratio was 112 bulls per 100 cows in 1963, compared to 93 in 1962. There were 26 spike bulls per 100 older bulls in 1963, compared to 38 in 1962. The calf-cow ratio of the harvest, 33 calves per 100 cows in 1963, was slightly higher than in 1962.

Bear and Special Seasons Harvest

Bear harvest information from questionnaire returns is shown in Table 18. The 5693 bear hunters in District Two in 1963 killed 296 bears for a success ratio of 5 percent. The number of hunters is somewhat lower, and the bear kill higher, than in 1962 when 209 were killed.

The harvest of bighorn sheep, antelope, moose and mountain goat are shown in Tables 18, 19, 20 and 21.

Ten either-sex sheep permits were issued for the Rock Creek area. All permit holders were successful in killing a sheep. Permittees reported killing six males, 1 female and 3 sheep of unknown sex.

Of the fifteen holders of antelope permits in area 221, 3 did not hunt. The 12 who hunted were 75 percent successful, thus killing 9 antelope. These were all reported to be males.

Moose permit holders numbered 108, of which 100 hunted. They killed 77 moose, which were reported to be 60 percent males and 40 percent females. A ratio of 9 calves per 100 adults was reported.

Goat permits numbered at least 289, of which 256 hunted. They were 45 percent successful, and killed 115 goats. These ^{were} reported to be 56 percent males and 44 percent females.

Other Harvest Surveys

Guides and outfitters reports received indicated that District Two outfitters guided 297 hunters in 1963 (Table 22). Seventy-seven percent of these were non-residents. They killed 137 elk, 53 deer, 5 bear, 3 moose and 8 goats. Overall hunting success was 69 percent compared to 74 in 1962 and 96 in 1961.

Mortality Surveys

The annual count of dead deer on the Clearwater sample plot indicated a relatively high winter loss. The remains of 33 dead deer were found on the 480 acre area. This represented a loss of 44 dead deer per square mile -- the highest since 1957. The 1962-63 loss was only 6 per square mile.

The bone marrow of 27 of the dead deer was examined. Twenty-six were found to have red, gelatinous marrow, indicating that malnutrition probably caused, or contributed to, the death of approximately 95 percent.

The composition of the dead animals was 13 fawns, two yearling bucks, one yearling doe, two prime males, one old male, three old females, and 11 unknown. All identifiable remains were of white-tailed deer.

POPULATION SURVEYS

Production

The results of classification counts of deer are shown in Tables 23 and 24.

The counts made in fall and early winter are believed to be more reliable, but have the disadvantage of smaller sample size. Counts made during this period indicated 25 bucks and 68 fawns per 100 does for white-tailed deer. For mule deer, ratios of 53 bucks and 58 fawns per 100 does were found. Fawn-adult ratios during this period were 54 fawns per 100 adults for whitetails, and 38 for mule deer.

Counts made throughout the winter showed 26 bucks per 100 does, and 54 fawns per 100 adults for whitetails. For mule deer, ratios of 57 bucks per 100 does and 42 fawns per 100 adults were indicated.

Elk sex-age ratios are shown in Table 25. In the district-wide sample of 1120 elk there were 29 bulls per 100 cows, 65 spikes per 100 older bulls, and 46 calves per 100 cows. Cow-calf ratios did not vary much among management units, although there was considerable apparent variation in sex ratios.

Population Trend and Distribution Surveys

Aerial trend counts of elk were attempted in three areas. Most of this work was concentrated in the east half of the Bitterroot drainage.

Table 26 shows the results of these flights. In the portion of the Bitterroot drainage from Miller Creek to the Big Hole divide and east of U.S. Highway 93, 1149 elk were counted. This is 28 percent less than the all-time high count in 1958, and is a number believed to be more compatible with

the carrying capacity of the range than the higher populations of prior years. The low count in 1962 is not comparable because of unfavorable counting conditions.

Counts for the Blackfoot and Deer Lodge areas were incomplete and should be considered records of distribution rather than population trend counts.

TRAPPING, MARKING AND TRANSPLANTING

Returns from native elk, trapped, tagged and released in District Two areas are shown in Table 27.

Two returns were received from Bitterroot areas. Both were cows. One was tagged at the Roaring Lion trap in 1962 and shot higher in the same drainage in November 1963. The other was tagged in 1955 at the Reimel-Tolan trap and shot on Tolan Creek in November 1963.

Six returns from native elk were received from the Blackfoot Unit. One was tagged on the Blackfoot-Clearwater Game Range in 1956 and shot there in 1963. Two were tagged at the Murphy trap in 1957. One was shot at Falls Point in September and one at Elk Mountain. Three were tagged in 1959 on the Blackfoot-Clearwater Game Range and shot in November, 1963, one at Drew Creek, one at Upsata Lake, and one near Cottonwood Lake.

Returns from transplanted Yellowstone elk are shown in Table 28. Six returns were received from elk planted at Olson Gulch, west of Anaconda. One was planted in 1960 and five in 1962. Two were shot in the transplant area, three south of Highway 10 in hunting district 214, and one from the Big Hole drainage.

Eight returns were received from elk planted on the Prison Ranch in Feb. 1963. These were all returned from the east slope of the Flint Creek Range in the general vicinity of the planting site.

Nine tags were returned from elk planted in the Brock Creek - Warm Springs Creek area of the Garnet Range. Two were shot at unknown locations, six in the vicinity of the transplant site, and one in area 215, 5 miles east of Garrison.

Totals of 23 native elk and 16 mule deer were trapped and tagged at Bitterroot trap sites during February and March, 1964. Pertinent tagging data are shown in Tables 29 and 30.

Additional releases of Yellowstone elk were made during late winter (1964) at Olson Gulch (33 elk) and on the Blackfoot-Clearwater Game Range (72 elk). Animals were ear-tagged with aluminum tags and marked with plastic neck-bands. Those in Olson Gulch had red neck-bands and those on the Game Range had white neck-bands.

GAME DAMAGE

Game damage to private property was more prevalent in 1964 than in 1963. Complaints of damage to haystacks, orchards, and other property involved

3 cases of deer damage and 8 cases of elk damage in District Two. These were distributed in the four management units as follows:

<u>Management Unit</u>	<u>Deer damage cases</u>	<u>Elk damage cases</u>
Clark Fork	0	1
Bitterroot	1	1
Blackfoot	1	2
Deer Lodge	1	4

RECOMMENDATIONS:

- 1 - Elk populations on the Blackfoot-Clearwater and Bitterroot Game Ranges should be increased moderately through less liberal hunting seasons in the game range areas to take advantage of improved forage conditions.
- 2 - Liberal elk seasons should be continued in districts 280 and 281 to alleviate winter range overuse by elk in upper Alice Creek.
- 3 - No further elk transplants should be made on the State Prison Ranch until elk use becomes lighter and range conditions improve.
- 4 - Liberal harvests of deer should be encouraged in hunting districts 20, 21, 22, 24, 27, 28, 281, 29, 212 and 215 to alleviate heavy use of browse. This may be accomplished by publicity directing hunters into over-browsed areas, or by special seasons.
- 5 - Goat distribution, population and harvest data for area 27 should be obtained as a basis for future hunting season recommendations.
- 6 - The either sex sheep season in the Rock Creek area should be discontinued since hunters have been taking young, sub-trophy rams, in preference to ewes. Surplus ewes should be removed by trapping and transplanting. A survey of District Two areas to determine suitable transplant areas should be made.
- 7 - Aerial elk trend counts in the east half of the Bitterroot Unit should be made in early spring (April or early May) for best results.

Prepared by Reuel G. Janson

Approved by Wynn G. Freeman

Date August 31, 1964

Table 1. Grass Condition and Trend on Elk Ranges in District Two

Sample Unit	Spec.	Year	No. Plants	Form Class - %			Condition Rating	Density Index(ft.)	Max.leaf Ht.(ft.)	% with seed	% utilization*
				Normal	Young	HC & CE					
Hunting Dist. 28											
B-C Game Range (Elk Basin)											
#245	Fesc	1961	100	17	3	80	Poor	1.20	1.03	21	--
#245	Fesc	1962	100	43	0	57	Fair	1.31	1.10	86	35
#245	Fesc	1963	100	35	3	62	Poor	.97	1.04	18	40
#274	Fesc	1961	100	35	0	65	Poor	1.61	1.42	72	43
#274	Fesc	1962	100	61	1	38	Good	1.52	1.48	98	--
#274	Fesc	1963	100	71	3	26	Good	1.18	1.37	21	7
Hunting Dist. 29											
Baldy Mtn. (So. of Lincoln)											
#212	Fesc	1957	100	18	14	68	Poor	.56	.76	27	--
#212	Fesc	1962	100	54	4	42	Fair	.52	1.02	20	--
#212	Fesc	1963	100	38	4	58	Fair	.40	1.10	32	6
Hunting Dist. 281											
Alice Creek (Lewis & Clark Pass)											
#25	Fesc	1962	50	0	12	88	V.Poor	.98	.68	4	heavy
#25	Fesc	1963	50	2	0	98	V.Poor	1.04	.73	80	2
Hunting Dist. 212											
State Prison Ranch											
So. America											
Park	Fesc	1963	100	11	2	87	V.Poor	.76	.59	11	71
Robinson Park	Fesc	1963	100	28	0	72	Poor	.39	.77	29	58
Robinson-Elk	Feid	1963	100	46	0	54	Fair	.58	.40	37	42
Hunting Dist. 26											
B.R.Game Range	Feid	1961	50	34	12	54	Fair	2.04	.35	24	--
B.R.Game Range	Feid	1962	50	68	6	26	Good	1.22	.48	56	--
B.R.Game Range	Feid	1963	50	78	2	20	Excellent	1.24	.42	56	10

*Spring reading

Table 2. Grass utilization on elk winter ranges in District Two

Sample Unit	Spec.	Year	No. Plants		% Grazed	% utilization	Pallet groups/acre	
			Total	grazed			Deer	Elk
District 25								
Overwhich Cr.	Agsp	1964	50	48	96	40	--	400
District 26								
B-R Game Range	Feid	1963	50	8	16	10	--	--
B-R Game Range	Feid	1964	32	7	22	12	--	--
B-R Game Range	Fesc	1964	18	6	33	24	--	--
District 28								
B-C Game Range								
#245	Fesc	1962	50	24	48	35	40	180
#245	Fesc	1963	100	53	53	40	0	120
#245	Fesc	1964	100	73	73	55	10	180
#274	Fesc	1961	50	29	58	43	20	200
#274	Fesc	1963	100	11	11	7	0	40
#274	Fesc	1964	100	18	18	13	0	20
District 29								
Baldy Mountain								
#212	Fesc	1963	100	2	2	2	20	20
#212	Fesc	1964	100	8	8	6	--	100
District 281								
Alice Creek								
#25	Fesc	1963	50	2	4	2	0	20
#25	Fesc	1964	100	96	96	73	0	820
District 210								
Hogback Cr.	All*	1964	100	58	58	44	0	280
S-1 (Stony Cr.)	All	1964	50	45	90	73	120	320
S-1, S-2 (Stony Cr.)	Agsp	1964	95	93	98	40	30	400
District 211								
Ross Fork	Fesc	1964	50	50	100	75+	--	560
District 212								
Stewart Lake	Fesc	1964	25	16	64	48	0	48
Fred Burr	Agsp	1964	25	20	80	34	0	432
Prison Ranch								
So.America Park	Fesc	1963	100	94	94	71	0	260
So.America Park	Fesc	1964	100	96	96	73	0	460
Robinson Park	Fesc	1963	100	75	75	58	0	800
Robinson Park	Fesc	1964	100	92	92	70	0	600
Robinson - Elk	All	1963	100	56	56	42	0	310
Robinson - Elk	All	1964	100	85	85	66	0	140
District 213								
Modesty Creek	Fesc	1964	50	13	26	18	20	120

*Species composition was 10% Agsp, 69% Feid and 21% Fesc

Table 3. Browse transect data, 1964

Hunting District & Transect Location	Plot No.	Key Species	No. Plants	% Class 3 & 6	Leader Use	Percent Decadent	Pellet groups/acre Deer	Elk
<u>District 24</u>								
Sweeney Creek		Amal	25	12	41	20	--	--
Larry Creek		Amal	25	36	90	48	800	120
Smith Creek		Amal	50	14	74	74	920	400
Gash Creek		Amal	20	30	17	35	--	--
Cow Creek		Amal						
Cow Creek		Salix	25	12	44	80	100	0
Roaring Lion		Amal						
Roaring Lion		Salix	25	20	53	72	120	160
Roaring Lion		Prunus						
Moose Creek		Amal	20	30	39	75	200	400
Lost Horse		Amal	50	46	80	78	120	40
Como		Putr	25	28	44	68	40	Moose-80
Bear Creek		Amal	25	44	71	56	220	0
Bear Creek		Prunus						
Total or Ave.			290	27	55	61	315	105
<u>District 25</u>								
Chaffin Creek	211	Putr	50	50	56	86	188	332
Pierce Creek		Amal	10	13	18	0	--	--
Trapper Creek		Putr	25	16	75	16	--	--
Pine Creek		Amal	25	28	4	76	70	60
Beavertail Creek		Amal	25	36	23	80	40	40
Lavene Creek		Salix	20	20	40	12	20	20
Overwhich		Amal	25	32	34	80	12	160
Total or Ave.			180	28	36	50	66	122
<u>District 26</u>								
Eight-mile	201	Amal	50	34	37	74	120	0
Three-mile	202	Amal	25	48	32	56	20	0
Ambrose Creek	203	Amal	25	32	5	64	28	0
Sawmill Gulch		Amal	--	10	est. 25	est. 15	est.	--
Mudd Creek		--	--	--	--	--	--	--
Willow Creek		Amal	25	0	2	48	40	0
Skalkaho Creek		Amal	25	52	51	60	126	40
Total or Ave.			150	29	25	53	67	8
<u>District 27</u>								
Jennings Hill	511	Putr	50	36	66	78	200	80
Kelly Hill		Putr	25	40	79	80	280	0
Spring Gulch (E.Fk.)		Putr	25	84	89	84	1200	200
Franklin Gulch		Putr	50	0	40	62	120	0
Whisky Gulch		Putr	25	4	40	40	80	0
Robbins Gulch	210	Putr	25	4	35	40	100	0
Rye Creek		Putr	25	36	29	96	52	0
Spring Gulch (Rye Cr.)		Mixed	25	24	54	32	40	120
Burke Gulch		Putr	25	12	41	72	260	60
Harlan Gulch		Putr	25	12	71	24	240	120
Little Sleep. Child		Putr	25	24	39	64	200	120
Total or Ave.			325	25	53	61	246	64

Table 3. Continued

Hunting District & Transect Location	Plot No.	Key Species	No. Plants	% Class 3 & 6	Leader Use	Percent Decadent	Pellet groups/acre Deer	Elk
District 28								
O'Keefe Creek	USFS#3	Amal	25	34	25	18	140	0
TV Mountain Rd.	Recon	Amal	25	12	39	32	200	0
Rattlesnake Cr.	Recon	Amal	10	70	90	100	170	0
Marco Flat	Recon	Amal	25	68	59	64	30	0
Twin Creek Rd.	Recon	Amal	25	20	14	28	20	0
McNamara	Recon	Amal	25	4	15	12	90	10
Sheep Flats	Recon	Amal	25	64	95	60	410	0
Woodchuck-upper	Recon	Amal	25	36	19	44	60	140
Woodchuck-lower	Recon	Amal	25	80	49	60	120	120
Camp Nine-upper	Recon	Amal	25	20	88	24	180	0
Camp Nine-lower	Recon	Amal	25	24	90	16	380	40
B-C Range-upper	Recon	Amal	25	0	51	4	--	--
B-C Range-lower	Recon	Amal	25	36	58	28	110	220
Oscar's Landing	Recon	Amal	25	70	90	40	120	100
Salmon Lake Hills	Recon	Amal	25	44	81	56	300	10
Placid Lake Hills	Recon	Prunus	25	16	67	32	20	40
Shanley Creek	Recon	Amal	25	23	59	56	40	40
Ovando Mountain	Recon	Amal	25	32	66	52	--	--
Ovando Mountain	Recon	Acer	10	60	88	100	--	--
Total or Ave.			445	38	60	43	149	45
District 280								
McCabe Creek	Recon	Acer	10	90	84	100	--	--
McCabe Creek	Recon	Prunus	10	20	57	30	--	--
McCabe Creek	Recon	Amal	25	28	27	44	--	--
McDermott		Amal	25	16	46	24		
McDermott		Acer	25	32	72	56	0	60
Dry Fork #1		Salix	25	28	67	36	--	--
Dry Fork #2		Salix	25	0	76	12	0	120
Total or Ave.			145	31	61	43	0	90
District 29								
Nevada Creek	Recon	Amal	10	10	68	70	220	20
Cramer Creek	808	Amal	25	8	1	8	40	0
Nimrod	Recon	Putr	25	36	89	32	330	0
Rattler Gulch	600	Putr	25	84	55	88	190	40
Hoover Creek	Recon	Putr	25	88	80	84	480	80
Carter Creek	521	Putr	25	96	53	100	150	50
Warm Springs Cr.	528	Putr	25	92	55	92	110	5
Poorman Cr.(upper)		Amal	25	16	37	96	100	0
Poorman Cr.(lower)		Amal	25	12	58	72	175	0
Baldy Mtn.	D-4-10	Prvi	25	40	84	72	380	0
Nevada Cr.(upper)	D-4-11	Amal	25	64	43	92	400	0
Total or Ave.			260	50	57	73	234	18

Table 3. Continued

Hunting District & Transect Location	Plot No.	Key Species	No. Plants	% Class 3 & 6	Leader Use	Percent Decadent	Pellet groups/ Deer	Elk
<u>District 281</u>								
Markham Mountain	806	Amal	25	24	80	40	180	0
Lower Lincoln Can.	Recon	Amal	25	76	77	76	280	0
Upper Lincoln Can.		Amal	25	20	43	72	300	0
Karshaw Mountain	D-4-12	Amal	25	32	46	96	140	20
Total or Ave.			100	38	61	71	225	5
<u>District 210</u>								
Schwartz Cr.	Recon	Amal	10	30	88	70	630	0
Kitchen Cr.	Recon	Prunus	10	20	88	30	140	0
Brewster Cr.	Recon	Amal	10	20	10	70	65	40
Welcome Cr.	Recon	Amal	10	50	40	90	480	58
Grizzly Cr.	Recon	Amal	10	40	4	50	65	0
Mallard Gulch	Recon	Art.	25	8	1	12	45	0
West Fork Buttes	Recon	Art.	25	12	4	16	15	20
Sawmill Gulch	Recon	Prunus	25	68	15	88	10	0
Smart Creek	Recon	Amal	25	24	24	36	75	0
Picket Gulch	Recon	Prunus	25	44	43	56	120	0
Total or Ave.			175	32	32	52	165	12
<u>District 214</u>								
East Fork Res.	Recon	Amal	25	44	8	64	15	0
<u>District 212</u>								
Boulder Creek	Recon	Cel	25	92	89	72	120	15
Racetrack Cr.	Recon	Prunus	25	76	48	96	160	20
Total or Ave.			50	84	69	84	140	18
<u>District 213</u>								
Lost Creek	Recon	Acer	25	16	63	32	110	0
Lost Creek	Recon	Prunus	10	80	44	90	--	--
Tin Can Gulch		814 Acer	10	40	42	90	10	20
Foster Creek	Recon	Amal	10	40	11	40	10	0
Total or Ave.			55	44	40	63	43	7
<u>District 215</u>								
Dry Cottonwood- lower	Recon	Putr	25	88	69	92	80	30
Dry Cottonwood- upper		501 Putr	25	92	88	68	170	0
L. Blackfoot	Recon	Putr	25	56	62	44	130	10
Total or Ave.			75	79	73	68	127	13

Table 4. Browse condition and utilization trend by hunting districts, 1962-1964

District	Year	No. Plots	No. Plants	% class 3 & 6	Condition class	Leader Use -%	Pellet groups/acre Deer	Elk
<u>Clark Fork Unit</u>								
20	1962	15	375	38	Poor	53	369	113
	1963	16	400	68	Very poor	37	145	22
	1964	18	420	42	Poor	64	329	31
21	1962	4	100	26	Fair	32	125	20
	1963	5	120	32	Poor	38	131	120
	1964	7	200	44	Poor	37	116	36
22	1962	13	325	29	Fair	41	258	78
	1963	13	325	51	Very poor	19	89	22
	1964	14	350	31	Poor	45	124	80
23	1962	17	375	31	Poor	40	73	104
	1963	21	465	39	Poor	8	36	33
	1964	25	547	24	Fair	34	73	44
Total Unit	1962	49	1175	32	Poor	43	222	93
	1963	55	1310	48	Poor	22	92	36
	1964	64	1517	34	Poor	46	160	47
<u>Bitterroot Unit</u>								
24	1962	6	90	17	Good	25	97	73
	1963	7	110	3	Excellent	14	94	23
	1964	10	290	27	Fair	55	315	105
25	1962	7	157	19	Good	23	108	144
	1963	7	128	10	Good	3	20	39
	1964	7	180	28	Fair	36	66	122
26	1962	6	125	21	Fair	30	125	17
	1963	5	95	9	Excellent	3	36	32
	1964	6	150	29	Fair	25	67	8
27	1962	9	275	31	Poor	41	123	51
	1963	11	245	11	Good	23	57	18
	1964	11	325	25	Fair	53	246	64
Total Unit	1962	29	647	22	Fair	31	114	69
	1963	30	578	8	Excellent	13	54	26
	1964	34	995	27	Fair	45	198	78
<u>Blackfoot Unit</u>								
28	1962	14	350	34	Poor	37	103	57
	1963	16	410	39	Poor	29	64	37
	1964	18	445	38	Poor	60	149	45

Table 4. Continued

District	Year	No. Plots	No. Plants	% class 3 & 6	Condition class	Leader Use -%	Pellet groups/acre Deer	Elk
280	1962	4	100	23	Fair	34	3	153
	1963	6	135	29	Fair	35	1	76
	1964	5	145	31	Poor	61	0	90
281	1962	3	75	57	Very poor	45	307	20
	1963	3	75	57	Very poor	36	97	7
	1964	4	100	38	Poor	61	225	5
29	1962	9	225	64	Very poor	46	211	0
	1963	8	200	54	Very poor	42	125	0
	1964	11	260	50	Poor	57	234	18
Total Unit	1962	30	750	44	Poor	40	142	49
	1963	33	820	48	Poor	34	69	33
	1964	38	950	41	Poor	59	162	39
<u>Deer Lodge Unit</u>								
210	1962	10	230	46	Poor	28	148	2
	1963	11	240	44	Poor	10	83	13
	1964	10	175	32	Poor	32	165	12
212	1962	2	45	67	Very poor	52	300	0
	1963	2	50	73	Very poor	53	187	17
	1964	2	50	84	Very poor	69	140	18
213	1962	4	55	21	Fair	55	41	0
	1963	3	75	27	Fair	26	84	0
	1964	3	55	44	Poor	40	43	7
214	1962	1	25	80	Very poor	67	56	32
	1963	1	25	68	Very poor	29	80	0
	1964	1	25	84	Very poor	69	140	18
215	1962	3	75	44	Poor	49	390	20
	1963	3	75	67	Very poor	57	197	2
	1964	3	75	79	Very poor	73	127	13
Total Unit	1962	22	475	41	Poor	34	158	5
	1963	20	465	49	Poor	20	106	7
	1964	19	380	50	Poor	46	131	12

Table 5. Numbers of big game animals and hunter trips checked at the Darby and Bonner stations

Station	Year	Elk	Mule deer	Whitetail deer	Black bear	Hunter trips
Darby	1961	644	421	6	12	4145
Darby	1962	504	208	9	3	3962
Darby	1963	395	219	3	22	3739
Bonner	1961	239	220	278	2	2073
Bonner	1962	133	164	170	5	2123
Bonner	1963	156	170	125	5	1784

Table 6. Distribution of kill locations of big game animals checked at the Darby station

Species	Year	West Fork		Triangle		East Fork		Rye Creek		Total No.
		No.	%	No.	%	No.	%	No.	%	
Elk	1961	140	22	135	21	303	47	66	10	644
	1962	134	27	107	21	205	41	58	11	504
	1963	156	39	139	35	67	17	33	8	395
Mule deer	1961	56	13	65	16	233	55	66	16	421
	1962	52	25	57	27	64	31	35	17	208
	1963	55	25	57	26	69	32	38	17	219
Whitetail deer	1961	4		1		0		1		6
	1962	6		0		1		2		9
	1963	0		2		0		1		3
Black bear	1961	3		2		3		4		12
	1962	0		1		1		1		3
	1963	10		4		2		6		22

Table 7. Distribution by time periods of elk and deer harvest checked at the Darby Station, 1963

Species	Period	Males	Females	Young	Total		Ratio/100 ad.females	
					No.	%	ad. males	Young
Elk	Sept. 15 - Oct. 19	73	48	19	140	35	152	40
Elk	Oct. 20 - Nov. 24	52	41	22	115	29	127	54
Elk	Nov. 25 - Dec. 24	33	67	33	133	34	49	49
Elk	Dec. 25 - 31*	7	--	--	7	2	--	--
	Total	165	156	74	395	100	106	17
Deer	Sept. 15 - Oct. 19	53	42	10	105	48	126	24
Deer	Oct. 20 - Nov. 24	71	33	10	114	52	215	30
	Total	124	75	20	219	100	165	27

*Extended season for branch antlered bull elk only

Table 8. Sex and age composition of big game animals checked at the Bonner station, 1963

Species	Year	Ad. males		Ad. females		Young		Total No.	Ratio/100 ad. females	
		No.	%	No.	%	No.	%		Ad. males	Young
Elk	1961	96	40	94	39	49	21	239	102	52
	1962	56	42	54	41	23	17	133	104	43
	1963	60	39	66	42	30	19	156	91	45
Mule deer	1961	125	57	72	33	23	10	220	174	32
	1962	90	55	51	31	22	14	163	176	43
	1963	95	56	57	34	18	11	170	167	32
W.T. deer	1961	109	39	108	39	61	22	278	101	56
	1962	85	49	51	30	36	21	172	167	71
	1963	52	42	41	33	32	25	125	127	78

Table 9. Sex and age composition of big game animals checked at the Darby station during the either sex season*

Area & Species	Year	Ad. males		Ad. females		Young		Total No.	Ratio/100 ad. females	
		No.	%	No.	%	No.	%		Ad. males	Young
<u>Dist. 25</u>										
Elk	1961	112	41	121	44	42	15	275	93	35
	1962	110	46	99	41	32	13	241	111	32
	1963	119	41	115	39	57	20	291	103	50
Mule deer	1961	72	58	39	31	13	11	124	182	33
	1962	61	56	38	35	10	9	109	161	26
	1963	68	61	37	33	7	6	112	183	19
<u>Dist. 27</u>										
Elk	1961	110	31	184	52	57	16	351	60	31
	1962	109	41	106	40	48	18	263	103	45
	1963	39	40	41	42	17	18	97	95	41
Mule deer	1961	144	47	115	38	45	15	304	125	39
	1962	55	56	35	35	9	9	99	157	26
	1963	56	52	38	36	13	12	107	147	34
<u>Total Upper Bitterroot</u>										
Elk	1961	240	37	305	47	99	16	644	79	32
	1962	219	43	205	41	80	16	504	107	39
	1963	158	42	156	39	74	19	388	101	47
Mule deer	1961	215	50	154	36	58	14	427	140	38
	1962	116	56	73	35	19	9	208	159	26
	1963	124	57	75	34	20	9	219	165	27

*A few additional bull elk were killed during the extended bull season each year.

Table 10. Age composition of mature deer and elk indicated by dentition, Bonner station, 1963

Species	Sex	Age Class								Total No.	Ylg./100 older	Old/100 other
		Yearling		Prime		Uncl.adult*		Old				
		No.	%	No.	%	No.	%	No.	%			
Elk	Male	16	28	20	34	22	38	0	0	58	38	0
	Female	7	24	20	69	0	0	2	7	29	32	7
	Both	23	26	40	46	22	25	2	2	87	36	3
Mule deer	Male	39	43	47	52	5	5	0	0	91	75	0
	Female	13	35	18	49	0	0	6	16	37	54	19
	Both	52	41	65	51	5	4	6	5	128	68	5
W.T. deer	Male	17	35	15	31	8	17	8	17	48	55	20
	Female	10	37	12	44	0	0	5	19	27	59	23
	Both	27	36	27	36	8	11	13	17	75	56	21

*Older than yearlings

Table 11. Age composition of mature deer and elk by dentition, Darby station, 1963

Species	Sex	Age Class								Total No.	Ylg./100 older	Old/100 other
		Yearling		Prime		Uncl.adults*		Old				
		No.	%	No.	%	No.	%	No.	%			
Elk	Male	26	40	18	28	17	26	4	6	65	67	7
	Female	3	19	10	63	0	--	3	19	16	23	23
	Both	29	36	28	35	17	21	7	9	81	56	9
Mule deer	Male	24	46	24	46	3	6	1	2	52	86	2
	Female	8	32	15	60	0	--	2	8	25	47	9
	Both	32	42	39	51	3	4	3	4	77	71	4

*Older than yearlings

Table 12. District Two deer harvest, 1961-63

Unit and Hunting District	Year	Deer harvest by:			Area (sq.mi.)	Kill per sq.mi.	No. hunters	Hunting Success
		Res.	Non-res.	Total				
<u>Clark Fork</u>								
20	1961	797	34	831	420	1.98	858	97
	1962	473	40	513	420	1.22	1070	48
	1963	290	24	314	420	.75	582	54
21	1961	551	21	572	275	2.07	909	63
	1962	315	8	323	275	1.17	854	38
	1963	396	16	412	275	1.50	992	42
22	1961	1210	91	1301	610	2.13	1765	74
	1962	645	55	700	610	1.15	1493	47
	1963	670	49	719	610	1.18	1163	62
23	1961	643	14	657	515	1.28	1063	62
	1962	402	14	416	530	.78	1018	41
	1963	610	24	634	665	.95	1305	49
Total unit	1961	3201	160	3361	1820	1.85	4595	73
	1962	1835	117	1952	1835	1.06	4435	44
	1963	1966	113	2079	1970	1.06	4042	51
<u>Bitterroot</u>								
24	1961	766	69	835	610	1.37	1353	62
	1962	301	0	301	595	.51	1250	24
	1963	183	8	191	595	.32	803	24
25	1961	230	42	272	675	.40	649	42
	1962	430	39	469	675	.69	911	52
	1963	183	33	216	675	.32	610	35
26	1961	552	0	552	670	.82	909	61
	1962	430	8	438	670	.65	919	48
	1963	153	24	177	535	.33	316	56
27	1961	628	77	705	585	1.21	1329	53
	1962	301	24	325	585	.56	928	35
	1963	228	33	261	585	.45	864	30
Total unit	1961	2176	188	2364	2540	.93	4240	56
	1962	1462	71	1533	2525	.61	4008	38
	1963	716	90	806	2390	.34	2509	32
<u>Blackfoot</u>								
28	1961	1516	70	1586	1300	1.22	2480	64
	1962	731	24	755	870	.87	1684	45
	1963	1020	0	1020	870	1.17	2133	46

Table 12. Continued

Unit and Hunting District	Year	Deer harvest by:			Area (sq.mi.)	Kill per sq.mi.	No. hunters	Hunting Success
		Res.	Non-res.	Total				
29*	1961	1195	14	1209	1280	.94	1361	89
	1962	1176	31	1207	1430	.84	2112	57
	1963	1265	16	1281	1430	.90	2197	58
280	1961	184	0	184	95	1.94	175	104
	1962	57	8	65	220	.30	160	41
	1963	61	65	126	345	.37	251	50
281	1961	--	--	--	--	--	--	--
	1962	229	8	237	400	.59	538	44
	1963	396	33	429	275	1.56	734	58
Total unit	1961	2896	83	2979	2580	1.15	4016	74
	1962	2193	71	2264	2920	.78	4494	50
	1963	2742	114	2856	2920	.98	5315	54
<u>Deer Lodge</u>								
210	1961	950	14	964	1060	.91	1139	85
	1962	1104	39	1143	1060	1.08	1667	69
	1963	442	9	451	1095	.41	961	45
211	1961	138	7	145	245	.59	237	61
	1962	86	0	86	245	.35	229	38
	1963	92	8	100	245	.41	123	81
212	1961	276	21	297	605	.49	511	58
	1962	330	8	338	605	.56	575	59
	1963	244	24	268	605	.44	589	46
213	1961	92	0	92	195	.47	138	67
	1962	57	0	57	195	.29	201	28
	1963	30	0	30	195	.15	213	14
214	1961	107	0	107	165	.65	184	58
	1962	57	16	73	165	.44	231	32
	1963	76	24	101	165	.61	208	48
215	1961	214	0	214	435	.49	352	61
	1962	186	8	194	435	.45	481	40
	1963	199	8	207	435	.48	367	57
Total unit	1961	1777	42	1819	2705	.67	2561	71
	1962	1820	71	1891	2705	.70	3384	56
	1963	1084	73	1157	2740	.42	2461	47
<u>Total Dist. 2</u>								
	1961	10049	474	10523	9645	1.09	15,412	68
	1962	7313	328	7641	9985	.77	16,373	47
	1963	6535	400	6935	9985	.69	14,411	48

*Includes hunting district 290

Table 13. District Two elk harvest, 1963

Unit and Hunting District	Year	Elk harvest by:			Area (sq.mi.)	Kill per sq.mi.	No. hunters	Hunting Success
		Res.	Non-res.	Total				
<u>Clark Fork</u>								
20	1961	383	28	411	420	.98	811	51
	1962	258	31	289	420	.69	1323	22
	1963	183	16	199	420	.47	774	26
21	1961	153	7	160	275	.58	588	27
	1962	100	0	100	275	.36	575	17
	1963	76	0	76	275	.28	497	15
22	1961	904	77	981	610	1.61	2128	46
	1962	545	86	631	610	1.03	2049	31
	1963	472	41	513	610	.84	1800	29
23	1961	245	14	259	515	.50	1063	24
	1962	387	8	395	530	.75	1336	30
	1963	350	0	350	665	.52	1361	26
Total unit	1961	1685	126	1811	1820	.99	4590	39
	1962	1290	125	1415	1835	.77	5283	27
	1963	1081	57	1138	1970	.58	4432	26
<u>Bitterroot</u>								
24	1961	414	34	448	610	.73	1245	36
	1962	258	24	282	595	.47	1465	19
	1963	152	33	185	595	.31	1331	14
25	1961	337	77	414	675	.61	1202	34
	1962	516	47	563	675	.83	1746	32
	1963	366	114	480	675	.71	1624	30
26	1961	230	0	230	670	.34	680	34
	1962	158	8	166	670	.25	1042	16
	1963	183	16	199	535	.37	530	38
27	1961	521	104	625	585	1.07	1921	33
	1962	416	62	478	585	.82	1880	25
	1963	290	8	298	585	.51	1404	21
Total unit	1961	1502	215	1717	2540	.68	5048	34
	1962	1348	141	1389	2525	.55	6133	25
	1963	991	171	1162	2390	.48	4889	24
<u>Blackfoot</u>								
28	1961	735	70	805	1300	.62	2521	32
	1962	301	24	325	870	.37	1456	23
	1963	335	8	343	870	.39	2182	16

Table 13. Continued

Unit and Hunting District	Year	Elk harvest by:			Area (sq.mi.)	Kill per sq.mi.	No. hunters	Hunting Success
		Res.	Non-res.	Total				
29	1961	322	7	329	1280	.26	1093	30
	1962	401	8	409	1430	.29	2276	18
	1963	381	16	397	1430	.28	2800	14
280	1961	61	28	89	95	.94	309	29
	1962	29	23	52	220	.23	276	19
	1963	107	49	156	220	.71	419	37
281	1961	--	--	--	--	--	--	--
	1962	86	0	86	400	.23	1126	8
	1963	92	16	108	400	.27	1216	9
Total unit	1961	1057	77	1134	2580	.44	3614	31
	1962	817	55	872	2920	.30	5134	17
	1963	915	89	1004	2920	.34	6619	15
<u>Deer Lodge</u>								
210	1961	184	7	191	1060	.18	773	25
	1962	57	0	57	1060	.05	727	8
	1963	92	8	100	1095	.09	832	12
211	1961	61	7	68	245	.28	380	18
	1962	86	8	94	245	.38	338	28
	1963	46	8	54	245	.22	300	18
212	1961	199	7	206	605	.34	794	26
	1962	72	8	80	605	.13	647	12
	1963	137	16	153	605	.25	734	21
213	1961	46	0	46	195	.24	92	50
	1962	14	0	14	195	.07	173	8
	1963	46	0	46	195	.24	198	23
214	1961	61	0	61	165	.37	221	28
	1962	57	8	65	165	.39	280	23
	1963	46	0	46	165	.28	269	17
215	1961	169	13	182	435	.42	811	23
	1962	57	8	65	435	.15	747	9
	1963	122	16	138	435	.32	832	17
Total unit	1961	720	34	754	2705	.28	3071	25
	1962	343	32	375	2705	.14	2912	13
	1963	489	48	537	2740	.20	3165	17
Total Dist.2	1961	4963	453	5416	9645	.56	16,321	33
	1962	3800	352	4152	9985	.42	19,482	21
	1963	3476	365	3841	9985	.38	19,103	20

Table 14. Time of kill of 1963 deer harvest, from questionnaire

Hunting District	Percent of Harvest					Unknown	Sample size
	Before Oct. 20	Oct. 20-28	Oct. 29 Nov. 11	Nov. 12-24	After Nov. 24		
20	0	16	31	53	0	0	19
21	0	16	52	32	0	0	25
22	0	21	30	42	0	7	43
23	0	16	58	26	0	0	38
24	25	50	8	8	0	0	12
25	58	25	8	8	0	0	12
26	0	50	25	25	0	0	8
27	0	40	27	33	0	0	15
28	0	22	33	43	0	2	63
280	33	33	33	0	0	0	3
281	0	25	38	33	0	4	24
29	0	25	37	36	0	2	76
210	0	11	68	18	0	4	28
211	50	17	33	0	0	0	6
212	0	56	31	13	0	0	16
213	0	0	0	100	0	0	2
214	0	20	60	20	0	0	5
215	0	38	31	23	0	8	13
Total	3.4	24.3	38.2	31.5	0	2.6	416

Table 15. Time of kill of 1963 elk harvest, from questionnaire

Hunting District	Percent of Harvest					Unknown	Sample size
	Before Oct. 20	Oct. 20-28	Oct. 29 Nov. 11	Nov. 12-24	After Nov. 24		
20	0	8	33	58	0	0	12
21	0	60	40	0	0	0	5
22	0	19	45	35	0	0	31
23	0	22	35	39	0	4	23
24	20	10	0	60	10	0	10
25	42	4	13	29	12	0	24
26	0	0	8	42	50	0	12
27	11	10	11	32	31	5	19
28	0	27	27	27	18	0	22
280	85	0	14	0	0	0	7
281	0	33	33	33	0	0	6
29	0	20	32	40	8	0	25
210	0	33	50	17	0	0	6
211	67	0	33	0	0	0	3
212	0	33	67	0	0	0	9
213	0	100	0	0	0	0	3
214	0	33	67	0	0	0	3
215	0	63	37	0	0	0	8
Total	9.7	19.7	28.5	31.6	9.7	0.9	228

Table 16. Composition of 1962 and 1963 deer harvest by species and antler class from questionnaire data

Hunting District	Year	Antlered Deer		Antlerless		Mule Deer		Whitetail	
		No.	%	No.	%	No.	%	No.	%
20	1962	310	64	174	36	311	61	202	39
	1963	177	56	137	44	123	41	176	59
21	1962	180	58	129	42	65	20	258	80
	1963	221	54	191	46	107	28	282	72
22	1962	369	58	266	42	317	48	339	52
	1963	352	52	328	48	452	64	252	36
23	1962	221	57	166	43	223	56	178	44
	1963	360	57	274	43	260	42	358	58
24	1962	201	67	100	33	143	48	158	52
	1963	61	35	115	65	122	64	69	36
25	1962	218	46	252	54	426	97	14	3
	1963	108	52	100	48	207	100	0	0
26	1962	223	51	215	49	272	62	166	38
	1963	69	50	69	50	123	89	15	11
27	1962	153	47	172	53	296	95	14	5
	1963	123	47	138	53	231	89	30	11
28	1962	424	61	272	39	223	31	503	69
	1963	701	70	305	30	442	45	533	55
29	1962	761	64	424	36	811	68	388	32
	1963	694	61	435	39	884	81	213	19
280	1962	29	44	37	56	29	57	22	43
	1963	78	62	48	38	95	86	15	14
281	1962	137	58	100	42	137	58	100	42
	1963	238	55	191	45	207	48	221	52
210	1962	583	55	518	45	877	82	194	18
	1963	344	79	91	21	374	86	62	14
211	1962	43	50	43	50	72	84	14	16
	1963	54	54	46	46	100	100	0	0
212	1962	166	54	143	46	280	87	43	13
	1963	145	56	115	44	230	88	30	12
213	1962	57	100	0	--	57	100	0	--
	1963	15	50	15	50	30	100	0	--
214	1962	22	30	51	70	51	70	22	30
	1963	62	62	39	38	85	100	0	--
215	1962	143	74	51	26	180	93	14	7
	1963	101	53	91	47	192	93	15	7
District Total	1962	4269	58	3113	42	4771	64	2632	36
	1963	4024	59	2750	41	4323	65	2343	35

Table 17. Composition of 1962 and 1963 elk harvest by sex-age class from questionnaire data

Hunting Dist.	Year	% Bulls	% Spikes	% Cows	% Calves	Total No.	Bulls*/ 100 cows	Spikes/ 100 bulls	Calves/ 100 cows
20	1962	43	8	30	20	289	167	18	66
	1963	31	4	50	15	199	69	13	30
21	1962	14	-	72	14	100	19	--	19
	1963	40	20	20	20	75	300	50	100
22	1962	33	11	46	10	631	97	35	23
	1963	16	6	55	22	512	40	36	41
23	1962	38	11	36	14	394	136	28	40
	1963	39	13	39	9	350	134	34	22
24	1962	36	5	44	15	282	94	14	35
	1963	71	--	29	--	185	242	--	--
25	1962	21	19	50	10	563	80	93	20
	1963	37	5	48	10	480	87	13	20
26	1962	39	8	18	35	165	272	22	196
	1963	65	4	23	8	199	300	6	33
27	1962	33	15	45	6	478	107	46	14
	1963	51	13	20	15	298	313	26	75
28	1962	35	11	44	9	326	104	32	20
	1963	40	9	38	13	343	128	22	35
29	1962	28	10	44	18	410	88	37	40
	1963	21	10	54	15	397	58	46	29
280	1962	27	15	42	15	52	100	57	36
	1963	35	25	30	10	156	200	70	33
281	1962	--	34	50	16	86	67	--	33
	1963	--	14	86	--	107	16	--	--
210	1962	--	--	100	--	57	--	--	--
	1963	70	--	15	15	99	460	--	100
211	1962	31	--	54	15	94	57	--	27
	1963	43	--	57	--	53	77	--	--
212	1962	18	18	28	37	79	127	100	132
	1963	15	30	33	20	153	128	200	56
213	1962	100	--	--	--	14	--	--	--
	1963	33	--	66	--	45	50	--	--
214	1962	--	--	56	44	66	--	--	78
	1963	33	--	33	33	45	100	--	100
215	1962	12	--	88	--	65	14	--	--
	1963	50	17	11	22	137	613	33	200
District									
Total	1962	30	11	45	14	4152	93	38	31
	1963	37	9	41	13	3822	112	26	33

*Includes spike bulls

Table 18. District Two bear harvest, 1963

Unit and Hunting District	No. hunters	Bears Killed	Hunter Success (percent)
<u>Clark Fork</u>			
20	292	15	5
21	307	61	20
22	431	15	4
23	468	0	--
Total unit	<u>1498</u>	<u>91</u>	<u>6</u>
<u>Bitterroot</u>			
24	424	39	9
25	490	14	3
26	178	15	9
27	354	0	--
Total unit	<u>1446</u>	<u>68</u>	<u>5</u>
<u>Blackfoot</u>			
28	705	30	4
29	672	46	7
280	173	0	--
281	400	15	4
Total unit	<u>1950</u>	<u>91</u>	<u>5</u>
<u>Deer Lodge</u>			
210	123	0	--
211	124	8	7
212	253	15	6
213	76	15	20
214	85	0	--
215	138	8	6
Total unit	<u>799</u>	<u>46</u>	<u>6</u>
District Total	1963	296	5
	1962	209	3.5

Table 19. Bighorn sheep and antelope harvest

Species	Hunting District	Permits issued	No. who hunted	Percent success	Animals killed	No. Males	No. Females	No. Yg.	No. Unk.
Sheep	220	10	10	100	10	6	1	0	3
Antelope	221	15	12	75	9	9	0	0	0

Table 20. District 2 moose harvest, 1963

Hunting District	Permits Issued	No. who hunted	Percent success	Moose killed	No. males	No. females	No. adults	No. calves
23	3	3	100	3	2	1	3	0
24	10	9	44	4	4	0	2	2
25	15	12	83	10	4	5	7	2
26	5	5	100	5	4	1	5	0
27	20	16	63	10	4	5	8	1
212	15	15	73	11	9	1	9	1
214	5	5	100	5	3	2	5	0
216	5	5	100	5	4	1	5	0
217	10	10	80	8	2	5	7	0
218	5	5	100	5	4	1	5	0
219	15	15	80	12	4	8	11	1
Total	108	100	77	77	46	30	69	7

Table 21. District 2 mountain goat harvest, 1963

Hunting District	Permits Issued	No. who hunted	Percent success	Goats killed	No. males	No. females	Unknown
24	100	87	46	40	24	15	1
25	25	18	33	6	3	2	1
27	66+	66	44	29	17	11	1
212	15	11	27	3	--	2	1
213	3	3	100	3	2	1	0
214	15	15	53	8	6	1	1
222	30	25	36	9	2	6	1
280	25	21	48	10	2	7	1
281	10	10	70	7	4	2	1
Total	289+	256	45	115	60	47	8

Table 22. Big game harvest reported by licensed outfitters

Unit	Hunters		Elk					Deer					Other			%
	Res.	Non-res.	Bulls	Cows	Calves	Unk.	Total	Bucks	Does	Fawns	Unk.	Total	Moose	Goats	Bear	
Clark Fork	32	113	31	38	9	0	78	16	7	0	9	32	0	0	1	77
Bitterroot	20	95	26	19	1	0	46	15	4	0	1	20	3	6	3	73
Blackfoot	15	12	2	5	1	0	8	1	0	0	0	1	0	2	1	44
Deer Lodge	1	9	1	2	0	2	5	0	0	0	0	0	0	0	0	50
District																
Total 1963	68	229	60	64	11	2	137	32	11	0	10	53	3	8	5	69
1962	110	221	99	66	19	1	185	34	7	0	7	48	3	8	2	74
1961	105	176	115	59	12	0	186	53	18	1	0	72	0	5	7	96

Table 23. Deer sex and age ratios, fall and early winter

Unit	Bucks	Does	Total Adults	Fawns	Bucks/ 100 does	Fawns/ 100 does	Fawns/ 100 adults
<u>White-tailed deer</u>							
Clark Fork	27	108	135	73	25	68	34
<u>Mule deer</u>							
Clark Fork	36	71	107	37	51	52	35
Blackfoot	28	47	75	26	60	55	35
Deer Lodge	10	21	31	17	48	81	55
Total	74	139	213	80	53	58	38

Table 24. Deer sex and age ratios, fall, winter, spring, 1963-1964

Hunting District	Bucks	Does	Unclass. Adults	Total Adults	Fawns	Bucks/ 100 does	Fawns/100 does & uncl. ads.	Fawns/ 100 Adults
<u>White-tailed deer</u>								
28	11	41	47	99	56	27	64	57
281	5	10	0	15	7	50	70	47
29	1	13	5	19	14	8	78	74
Total Blackfoot	17	64	52	133	77	27	66	58
Total Clark Fork	27	108	278	413	219	25	57	53
Total District 2	44	172	330	546	296	26	59	54
<u>Mule deer</u>								
26	16	23	19	58	26	70	62	45
27	23	32	13	68	26	72	58	38
Total Bitterroot	39	55	32	126	52	71	60	41
28	25	28	35	88	36	89	57	41
281	1	10	0	11	8	10	80	73
29	10	21	27	58	28	47	58	48
Total Blackfoot	36	59	62	157	72	30	60	46
210	16	36	13	65	32	44	65	49
Total Deer Lodge	16	36	13	65	32	44	65	49
Total Clark Fork	36	71	179	286	111	51	44	39
Total District	127	221	286	634	267	57	53	42

Table 25. Elk sex and age ratios, 1963-64

Area	Adult bulls		Spike bulls		Cows		Calves		Bulls*	Spikes/	Calves
	No.	%	No.	%	No.	%	No.	%	/100 cows	100 older bulls	/100 cows
Clark Fork	80	12	46	7	387	56	174	25	33	58	45
Bitterroot	17	7	8	3	155	62	72	29	16	47	46
Blackfoot	15	8	19	10	99	55	48	27	34	127	48
Total	112	10	73	7	641	57	294	26	29	65	46

*Including spikes

Table 26. Aerial elk trend counts and distribution surveys

	No. elk counted in:		
	1958	1962	1964
Blackfoot North of Highway 10 and 20			
O'Keefe-Gold Creek	58	0	*
Gold-Belmont	9	0	tracks
Belmont-Blanchard	87	27	45
Blanchard-Seeley Lake	22	16	*
Seeley Lake-Cottonwood	43	7	7
Blackfoot-Clearwater Game Range	59	47	87
Cottonwood-Monture	13	0	8
Monture-Dick Creek	9	6	3
Ovando Mountain	110	51	69
North Fork-Coopers Lake	8	7	*
Markham-Mineral Mountain	51	21	24
Lincoln Canyon	11	17	1
Beaver Creek-Rogers Pass	*	20	128
Total (North side)	480	219	372
Bitterroot (East side)	1958	1963	1964
Miller-Eightmile Creek	96	69	49
Eightmile-Burnt Fork	40	60	75
Burnt Fork-Willow Creek	97	51	46
Willow Creek-Skalkaho	399	160	240
Sub-total	632	340	410
Skalkaho-Sleeping Child			69
Sleeping Child-Little Sleeping Child			50
Little Sleeping Child-Deer Hollow			53
Deer Hollow-Rye Creek			31
Sub-total	321	120	203
Rye Creek-Sula Point			72
French Basin			151
Bunch Gulch-Martin Creek			143
Camp Creek-Meadow Creek			170
Sub-total	651	341	536
Total (East side)	1604	801	1149
Deer Lodge			
Boulder Creek-Dunkleberg Creek	105	58	151
Dunkleberg-Rock Creek	36	60	12
Rock Creek-Powell Creek	84	46	44
Powell-Racetrack Creek	117	69	137
Racetrack-Lost Creek	100	106	92
Lost Creek-Warm Springs	86	32	0
Warm Springs-Fred Burr	14	28	17
Fred Burr-Boulder	59	41	40**
Total District 212	601	440	493
McDonald Pass-Little Blackfoot		24	*
Little Blackfoot-Freezeout Creek		157	143
Freezeout Creek-Peterson Creek		81	112
Peterson Creek-Dry Cottonwood		74	115
Dry Cottonwood-Gregson		43	35
Total District 215	530	379	405

*Area not adequately covered

**Ground count

Table 27. Tagged elk returns, native elk, 1963-64

Tag Nos.	Release Data				Recovery Data		
	Sex	Age	Date	Location	Date	Location	How
Bitterroot							
H2329-H2330	F	ad.	2/2/62	Roaring Lion	11/26/63	Goat Mtn. (Roaring Lion)	shot
F1247	F	ad.	3/8/55	Reimel-Tolan	11/11/63	Tolan Creek	shot
Blackfoot							
HL610	M	$\frac{1}{2}$	2/8/57	Murphy trap Warren Creek	---	Elk Mtn. (Ovando)	shot
H4572-H4573	M	$1\frac{1}{2}$	1/12/57	Murphy trap	9/21/63	Falls Point (N.Fk.)	shot
H3119-H3120	F	ad.	1/3/56	B-C Game Range	10/20/63	Boyd Mtn. (B-C G.R.)	shot
H2154-H2155	F	$\frac{1}{2}$	1/23/59	B-C Game Range	11/16/63	Head of Drew Creek	shot
H2148-H2149	F	ad.	1/23/59	B-C Game Range	11/11/63	Upsata Lake	shot
H2150-H2151	F	ad.	1/23/59	B-C Game Range	11/23/63	1 mi. NE Cottonwood Lake	shot

Table 28. Tag returns from transplanted Yellowstone elk, 1963-64

Tag Nos.	Release Data				Recovery Data		
	Sex	Age	Date	Location	Date	Location	How
H3350	F	$\frac{1}{2}$	2/5/60	Olson Gulch	11/24/63	Garrity Hill	shot
S1555	F	$\frac{1}{2}$	2/27/62	Olson Gulch	11/23/63	Haggin Lake	shot
S1573	M	$\frac{1}{2}$	2/27/62	Olson Gulch	10/30/63	Buck Gulch (Olson Mtn.)	shot
S1554	F	ad.	2/27/62	Olson Gulch	10/22/63	Warm Springs Cr.	shot
S1468	F	ad.	2/27/62	Olson Gulch	10/22/63	$\frac{1}{2}$ mi. so. George- town Lake	shot
S1467	-	$\frac{1}{2}$	2/27/62	Olson Gulch	10/21/63	Lower Seymour Lake	shot
S1909	F	$\frac{1}{2}$	2/7/63	Prison Ranch	11/20/63	W. of Prison Ranch	shot
S1923	F	ad.	2/7/63	Prison Ranch	10/24/63	$\frac{1}{2}$ mi. E. Rock Cr. Lk.	shot
S1926	F	ad.	2/7/63	Prison Ranch	11/6/63	Tin Cup Creek	shot
S1928	F	ad.	2/7/63	Prison Ranch	11/2/63	Emery Ridge	shot
S1921	-	$\frac{1}{2}$	2/7/63	Prison Ranch	10/27/63	Gold Creek	shot
S1944	F	ad.	2/7/63	Prison Ranch	10/31/63	Robinson Creek	shot
S1936	F	ad.	2/7/63	Prison Ranch	10/25/63	Doney Lake	shot
S1933	F	ad.	2/7/63	Prison Ranch	10/20/63	Tin Cup Creek	shot
S1635	F	ad.	1/27/63	Brock Warm Springs	?	?	shot
S1630	M	$\frac{1}{2}$	1/27/63	Brock Warm Springs	Fall, 1963	E. of Warm Sprgs. Cr.	shot
S1639	F	ad.	1/27/63	Brock-Warm Springs	Fall, 1963	?	shot
S1648	F	ad.	1/27/63	Brock-Warm Springs	11/24/63	Larry Bach Ranch	shot
S1646	F	ad.	1/27/63	Brock-Warm Springs	10/16/63	Brock Creek	shot
S1649	F	ad.	1/27/63	Brock-Warm Springs	11/3/63	Warm Springs Creek	shot
S1641	F	$\frac{1}{2}$	1/27/63	Brock-Warm Springs	11/10/63	Brock Creek	shot
S1632	F	ad.	1/27/63	Brock-Warm Springs	11/10/63	Brock Creek	shot
S1633	F	ad.	1/27/63	Brock-Warm Springs	10/30/63	5 mi. E. of Garrison So. of Little Black- foot River	shot
S1621	F	ad.	1/27/63	Brock-Warm Springs	11/10/63	Brock Creek	shot

Table 29. Elk trapped and tagged at Bitterroot locations, 1963-64

Trap Site	Tag Numbers	Date	Sex	Age	Remarks
South Gird	H 1214-15	3/1/64	M	old	Released at trap site
South Gird	H 1229-30	2/25/64	F	ad.	Released at trap site
South Gird	H 1231-32	2/25/64	F	ad.	Released at trap site
South Gird	H 1233-34	2/25/64	F	ad.	Released at trap site
South Gird	H 1239-40	2/27/64	F	calf	Released at trap site
South Gird	H 1266-67	3/6/64	F	ad.	Released at trap site
South Gird	H 1268-70	3/6/64	F	ad.	Released at trap site
South Gird	H 1271-72	3/6/64	M	calf	Released at trap site
South Gird	H 1276-77	3/6/64	M	calf	Released at trap site
South Gird	H 1278-80	3/6/64	F	calf	Released at trap site
South Gird	H 1267-68	2/27/64	F	calf	Released at trap site
Bitterroot Game Range	F 1222-23	2/23/64	F	old	Released at trap site
Bitterroot Game Range	F 1224-25	2/23/64	F	2 $\frac{1}{2}$	Released at trap site
Bitterroot Game Range	F 1262-63	2/23/64	F	ad.	Released at trap site
Bitterroot Game Range	F 1264-65	2/23/64	F	ad.	Released at trap site
Bitterroot Game Range	F 1266-68	2/23/64	F	calf	Released at trap site
Roaring Lion	H 1251-52	3/6/64	F	ad.	Released at trap site
Roaring Lion	H 1254-55	3/6/64	M	calf	Released at trap site
Roaring Lion	H 1256-57	3/6/64	F	ad.	Released at trap site
Roaring Lion	H 1258-59	3/6/64	F	ad.	Released at trap site
Roaring Lion	H 1262-63	3/6/64	F	ad.	Released at trap site
Roaring Lion	H 1264-65	3/6/64	F	ad.	Released at trap site
Pasture Draw	H 1221-74	2/29/64	M	ad.	Released at trap site

Table 30. Mule deer trapped and tagged at Bitterroot locations, 1963-64

Trap Site	Tag Numbers	Date	Sex	Age	Remarks
Roaring Lion	H 1227-28	2/24/64	F	old	Released at trap site
Roaring Lion	H 1235-36	2/24/64	F	ad.	Released at trap site
Roaring Lion	H 1237-38	2/24/64	F	ad.	Released at trap site
Roaring Lion	H 1241-69	2/24/64	M	2 $\frac{1}{2}$	Released at trap site
Roaring Lion	H 1242-43	2/24/64	M	fawn	Released at trap site
Roaring Lion	H 1244-50	2/24/64	F	ad.	Released at trap site
Roaring Lion	H(1245-46)?	2/24/64	F	ad.	Released at trap site
Roaring Lion	H 2245-46	2/28/64	F	fawn	Released at trap site
Roaring Lion	H 2247-26	2/28/64	F	fawn	Released at trap site
Roaring Lion	H 2248-49	2/28/64	F	ad.	Released at trap site
Bitterroot Game Range	H 3053-54	3/1/64	F	fawn	Released at trap site
Bitterroot Game Range	H 3055-56	3/1/64	F	ad.	Released at trap site
Bitterroot Game Range	H 3057-58	3/1/64	F	ad.	Released at trap site
Bitterroot Game Range	H 3061-62	3/1/64	F	fawn	Released at trap site
Bitterroot Game Range	H 3063-64	3/1/64	F	ad.	Released at trap site
Bitterroot Game Range	H 3065-66	3/1/64	F	ad.	Released at trap site

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JOB COMPLETION REPORT
INVESTIGATIONS PROJECT

State of Montana Name Wildlife Investigations, District Two
Project No. W-72-R-10 Title Big Game Surveys & Investigations
Job No. A-1 District-wide
Period Covered July 1, 1964 to June 30, 1965

ABSTRACT:

Grass condition transects on some important winter elk ranges indicated satisfactory range condition on the Bitter Root Game Range, a portion of the Blackfoot-Clearwater Game Range, and Baldy Mountain near Lincoln. Key grass species were in poor condition on a portion of the B-C Game Range, Alice Creek and the State Prison Ranch.

Grass utilization during the 1964-65 season was excessive on the Bitter Root Game Range, Alice Creek and the State Prison Ranch. Use was chiefly by elk, except on the Prison Ranch where cattle used most of the grass. Two summer range sample sites in the Skalkaho Game Preserve showed grass utilization by elk of 24 and 53 percent.

Browse utilization by deer and elk during the 1964-65 winter was greater than in any winter for at least five years. This was the result of deep, persistent snow, and inadequate game harvest for at least two years.

Browse condition was "poor" in the Clark Fork, Blackfoot, and Deer Lodge units, and "fair", verging on "poor" in the Bitter Root Unit. During the past year, the browse condition has deteriorated in all management units but the Deer Lodge, where it remains "poor".

Browse was used excessively during the 1964-65 winter in hunting district 20 (including 20.1), 24, 27, 28, 29, 281, 212 and 215. Pellet group counts indicated that deer were the principal range users on 85 percent of the over-used sites, and elk on 15 percent.

Checking stations were operated at Bonner and Darby. Fewer elk and mule deer were checked than in 1963, but somewhat more white-tailed deer and bear. Sex-age data were recorded for deer and elk and some deer were weighed.

Harvest questionnaire returns indicated a district harvest of 5,618 deer, 3,069 elk, 490 bear, 5 bighorn sheep, 101 mountain goats, and 70 moose. The deer and elk harvest was lower, and the bear harvest higher, than in 1963. The numbers of moose, goats and sheep taken by hunters were somewhat lower than in 1963.

Hunting success was 45 percent for deer hunters, slightly lower than in 1963, and 20 percent for elk hunters, the same as in 1963. The numbers of deer hunters and elk hunters both declined.

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Guides and outfitters reports indicated an over-all hunting success of 64 percent for their clients, compared to 69 percent in 1963.

The annual dead deer count on the 480 acre sample area showed a winter loss rate of 67 dead deer per square mile. This is the third highest loss since counts were begun in 1956. Most of the losses were from malnutrition and all were white-tailed deer.

Classified counts of live deer on winter ranges indicated relatively low production or survival of fawns. Fawn-adult ratios were 36 fawns per 100 adults for white-tailed deer and 32 for mule deer (average of Clark Fork, Bitter Root and Blackfoot units). Elk production was relatively good. The average calf-cow ratio for the three units was 42 calves per 100 cows.

Aerial elk trend counts were made chiefly in the Bitter Root Unit. A total of 1629 elk counted on the east side is the highest of record. An additional 795 elk were counted on the west side of the Unit.

Tag returns from marked elk included two from resident animals, and 28 from Yellowstone Park which were released on the Blackfoot-Clearwater Game Range in February-March, 1964. Of the 28 returns, 25 were from elk shot in the Boyd Mountain area of the Game Range. The transplanted elk, a total of 72, were neck-banded with white collars. Re-sightings of these collared elk indicate a wide dispersal of some transplanted elk.

Resident elk and deer were trapped and tagged at four trap sites in the Bitter Root unit. Totals of 75 elk and 21 mule deer were tagged and released at the trap sites.

One transplant of Yellowstone elk was made in the district. This consisted of 30 animals released in the Olson Gulch area near Anaconda in February, 1965.

Complaints of deer and elk damage to private property increased from 11 in 1963-64 to 17 in 1964-65.

OBJECTIVES:

To obtain qualitative data for the management of big game species in District Two. Information concerning range conditions, population condition and trend, and harvest will be collected in a systematic manner. The data will be tabulated and presented in reports for use by the Commission in setting big game seasons.

TECHNIQUES USED:

Range surveys were conducted according to standardized procedures in the Department's Range Survey Guide. General range inspections and appraisal of range conditions were performed in certain areas.

Classified counts of deer and elk were made during the winter and early spring to determine the production and survival of young. Classification of elk was performed by means of aerial observation from a helicopter and counts from the ground. Aerial trend counts using either fixed-wing aircraft or helicopter were made in some areas.

Checking stations were operated primarily at two locations to collect data on harvest trend, sex-age composition and deer weights.

Total harvest figures for District Two and each hunting district were obtained from state-wide questionnaire returns. Additional harvest data were taken from guides and outfitters reports.

A dead deer count was made in a 480 acre sample area near Salmon Lake to ascertain the relative winter loss of deer.

Inspections were made of several proposed Yellowstone elk transplant areas.

Game damage complaints were tabulated.

Elk and mule deer were trapped and tagged at four trap sites in the Bitter Root Unit. Re-locations of tagged elk were recorded and tabulated.

FINDINGS:

RANGE

Grassland Condition and Utilization

Grass condition and trend for some key grass-land elk ranges in District 2 are shown in Table 1.

The Bitter Root Game Range transect indicated a "good" condition for Idaho fescue plants, and a nearly static trend.

Rough fescue on the upper transect in Elk Basin on the Blackfoot-Clearwater Game Range was in "poor" condition and showed a downward trend, while the lower transect was in "excellent" condition with an upward trend. The chief problem here is unequal distribution of the wintering elk herd.

The Baldy Mountain transect showed that rough fescue was in "excellent" condition with an upward trend. Elk use has been light on this area for several years.

The transect on Lewis and Clark Pass showed rough fescue to be in "poor" condition with a slight upward trend. Elk use varies considerably from year to year depending on the severity of the winter.

Three transects on the State Prison Ranch showed "fair", "poor" and "very poor" condition respectively, with a static trend. There is considerable competition between elk and cattle for forage on this area.

Grass utilization data on some winter elk ranges are shown in Table 2.

Utilization on the Bitter Root Game Range transect was much higher than during the two prior years. Rough fescue was over-utilized (75%) compared to 24 percent in 1964.

On the Blackfoot-Clearwater Game Range utilization of rough fescue was 47 and 12 percent, respectively on the two transects, representing slightly less use than in 1964.

Utilization on Baldy Mountain was 12 percent, slightly more than in 1964.

Utilization of rough fescue was 31 percent at Lewis and Clark Pass, compared to 73 percent in 1964. This was because of deeper snow during the 1964-65 winter which caused most of the elk to winter at lower elevations east of the Continental Divide. A new transect on Telephone Ridge, south of the Pass, showed 65 percent use. The pellet count here was 605 per acre, compared to 1320 in 1964, indicating lighter use at this location also during the 1964-65 winter.

Utilization was high, between 60 and 70 percent on all three transects on the State Prison Ranch. The difference between fall and spring use checks indicated that elk used 12 percent of the forage, compared to 54 percent used by cattle (Table 3).

Comparison of forage clippings inside and outside of range cages at two grassland sites on summer range in the Skalkaho game preserve indicated utilization of 24 and 53 percent by elk. At the site with 53% elk use, pocket gophers had used an additional 9 percent, making a total of 62 percent utilization of forage at this site.

Browse Condition and Utilization

Browse survey data for individual transects are shown in Table 4. A summary by hunting districts appears in Table 5.

Utilization of browse during the 1964-65 winter was greater than any winter for at least five years. Heavy snow-fall began in mid-December and lasted into May. The combination of deep snow cover and a low hunting harvest concentrated heavy use on some winter ranges for the second consecutive year. The condition of palatable browse plants was poor in the Clark Fork, Blackfoot, and Deer Lodge Units, and fair, verging on poor, in the Bitter Root Unit. During the past year the condition of the browse has deteriorated in the Clark Fork, Bitter Root, and Blackfoot Units, and has remained the same in the Deer Lodge. During the past five years, the browse condition has deteriorated in the Clark Fork and remained about the same in the other three units. Because of the heavy use last winter, browse condition is expected to deteriorate by the spring of 1966.

Browse was used excessively by deer or elk during the 1964-65 winter in hunting districts 20 (including 20.1), 24, 27, 28, 29, 281, and 215. A total of 56 percent of 140 browse sample sites was considered excessively used. Among management units percentages of over-used plots were as follows: Clark Fork - 52 percent, Bitter Root - 53 percent, Blackfoot - 70%, and Deer Lodge - 47 percent. Pellet group counts indicated that deer were the principal range users on 85 percent of the over-used sites, and elk on 15 percent.

In the Clark Fork Unit the winter was rated as normal because of above average temperature, and above average precipitation for the period from

November through March. Browse use in excess of 50 percent, particularly when combined with a high percentage (more than 30%) of heavily hedged plants was deemed excessive.

The average leader use for the Clark Fork Unit was 53 percent, compared to 46 percent in 1964. The average browse condition in the Unit rated "poor" in each of the three years 1963-1965. By hunting areas, District 20 rated "very poor" and showed 72 percent average leader use. District 21 rated "very poor" and had 43 percent average leader use. District 22 rated "poor" and had 39 percent average leader use. Areas of excessive use in the Clark Fork Unit in 1965 were:

<u>District</u>	<u>Location</u>	<u>% Class 3 & 6</u>	<u>% Use</u>	<u>Principal class of game</u>
20.1	Tamarack Cr.	80	72	elk
	St. Regis Cut-Off(3)	88	88	deer
	Patrick Creek	84	73	deer, elk
	Boyd Mountain (2)	68	87	deer, elk
20	Four-Mile Creek	88	78	deer
	Keystone Mtn.	68	88	deer, elk
	Freezeout Gulch	100	89	deer
	Nigger Gulch	88	96	deer
	Kitchen Creek	100	90	deer
	Eddy Creek	80	96	deer
	Soudan	55	73	deer
21	Fournier Cr.	20	64	deer, elk
	Sixmile Cr.	88	68	deer, elk
	Nine Mile (Cayuse) Hill	100	90	deer
22	Trout Creek burn	80	86	elk, deer
	Dry Creek (2)	80	46	deer, elk
	Cold Creek (2)	86	69	elk
	Johnson Ranch	56	50	elk, deer
23	Little Park Cr.	12	80	deer
	Hayes Creek	70	90	elk
	Sawmill Cr.	62	65	deer
	Helean Landing	44	69	deer
	Upper W. Fork Butte Cr.(2)	56	70	deer, elk
	Upper Burdette Cr. (2)	72	59	elk

Although precipitation was above average at Darby, the 1964-65 winter was rated as "normal" for big game because of relatively mild temperatures during the November-March period. The average leader use for the Bitter Root Unit was 50 percent, compared to 45 percent in 1964. The average browse condition rated "fair", on the threshold of "poor" with a slight downward trend since 1964. District 24 and 27 were the most heavily used, 62% and 58%, respectively. District 24 rated "fair" and district 27 rated "poor". District 25 was on the threshold of "poor" and district 26 was "fair". An unusual feature was noted at

the transect site on Willow Creek. There, service berry bushes were in Form classes 1 & 2 with no appreciable use, yet Douglas Fir had been heavily used by deer.

Areas of excessive use in 1965 were:

<u>District</u>	<u>Location</u>	<u>% class 3 & 6</u>	<u>% Use</u>	<u>Principal class of game</u>
24	Sweeney Creek	24	87	deer, elk
	Larry Creek	50	88	deer, elk
	Smith Creek	12	75	deer, moose
	Lost Horse	28	66	deer, elk
	Bear Creek	84	70	deer
25	Chaffin Creek	28	55	deer, elk
	Opposite Trapper Cr.	0	58	deer, elk
	Beavertail Creek	58	33	elk
	Lavene Creek	13	51	elk
26	Ambrose Creek	32	65	deer, elk
	Sawmill Gulch	16	51	deer, elk
27	Jennings Hill	56	82	deer, elk
	Kelly Hill	64	90	deer
	Spring Gulch(E.Fork)	100	87	deer
	Spring Creek(Rye Cr.)	40	69	elk, moose
	Harlan Gulch	32	56	deer

In the Blackfoot Unit, the 1964-65 winter was rated as severe for big game because of above average precipitation and below average temperature as measured at Ovando.

Browse condition has remained "poor" in the Unit during the past three years, with a downward trend from 1964 to 1965. The average leader use has become heavier each year since 1963 and was 64 percent in 1965.

Hunting districts 28 and 281 were in "poor" condition while 29 was "very poor." Transects in area 280, which has very little winter range, were not checked in 1965. The average leader use was 58 percent in 281. Areas excessively used during the 1964-65 winter were as shown on the following page.

<u>District</u>	<u>Location</u>	<u>% class 3 & 6</u>	<u>% Use</u>	<u>Principal class of game</u>
28	O'Keefe Creek	48	77	deer, elk
	Rattlesnake Cr.	90	88	deer
	Marco Flat	52	69	deer
	Twin Creek	60	68	deer
	McNamara	28	59	deer
	Sheep Flats	88	89	deer
	Camp Nine (2)	30	69	deer
	B-C Game Range (3)	48	72	deer, elk
	Salmon Lake Hills	60	88	deer
	Ovando Mtn.	68	80	elk
29	Nevada Creek	20	76	deer
	Nimrod	40	90	deer
	Rattler Gulch	92	86	deer
	Hoover Creek	100	89	deer
	Carter Creek	88	80	deer
	Warm Springs Cr.	96	72	deer
	Poorman Cr. (2)	72	83	deer
281	Markham Mtn.	40	73	deer, elk
	Lower Lincoln Canyon	100	90	deer

In the Deer Lodge Unit the 1964-65 winter was rated "severe" because of relatively high precipitation and low average temperature during the November-March period.

Browse is relatively scarce in the Deer Lodge Unit and has been almost eliminated from some former key ranges by 30 years of over-use by game. The browse condition was "poor", on the threshold of "very poor", in each of the three years, 1963-1965. Leader use increased each year, and averaged 50 percent in 1965. Utilization was moderate in districts 210, 213, and 214, but was deemed excessive in districts 212 and 215. Browse condition was rated "fair" in district 210, "poor" in 213, and "very poor" in 212, 214 and 215.

The apparent "fair" condition and light use in district 210 is misleading since many of the transects are near canyon bottoms which are influenced by human disturbance, shade and persistent cold air more than higher, more exposed slopes which often are affected by temperature inversions. Range inspections on some of these higher slopes show poorer browse conditions, heavier use, and depletion of palatable browse species.

Areas used excessively in 1965 were:

<u>District</u>	<u>Location</u>	<u>% class 3 & 6</u>	<u>% use</u>	<u>Principal class of game</u>
210	Kitchen Creek	56	90	deer
212	Boulder Creek	100	90	deer
213	Tin Can Gulch	55	71	deer
	Foster Creek	56	58	deer
215	Dry Cottonwood Cr. (2)	84	88	deer
	Little Blackfoot-upper	50	70	deer, elk
	Little Blackfoot-lower	96	89	deer

HARVEST

Checking Stations

Checking stations were operated at Bonner and Darby during the fall of 1964. The numbers of animals checked through these stations are shown in Table 6.

Totals of 212 elk, 141 mule deer, 6 white-tailed deer, and 15 black bear were checked at Darby. The harvest of all species except white-tailed deer was lower than in 1963. The number of hunter trips recorded was 1966, nearly 50% less than in 1963.

At the Bonner station 148 elk, 93 mule deer, 163 white-tailed deer, 27 black bear, and 2063 hunter trips were recorded. Slightly fewer elk, considerably less mule deer, more white-tailed deer and more bear were checked than in 1963. The number of hunter trips increased from 1963.

Relatively low harvests were believed caused primarily by a mild fall with little snow.

The distribution of the big game harvest among the four segments of the Bitter Root Unit is shown in Table 7. Approximately 70 percent of the elk kill was made in hunting district 25, and 30 percent in district 27. Conversely, 70 percent of the deer harvest was made in area 27, compared to 49 percent in 1963.

By time periods, 47 percent of the elk were taken during the early season (Oct. 3-17), and only 7 percent during the first two weeks of the general season (Table 8). There was no extended season for elk and no early or extended season for deer. The two-week period November 1-14 provided the largest portion of the deer harvest (46%).

Sex-age composition of checked animals is shown in Tables 9 & 10. At Bonner the elk harvest consisted of 32 percent bulls, 47 percent cows, and 22 percent young. There were ratios of 68 bulls per 100 cows and 46 calves per 100 cows. The proportion of bulls declined and calves increased slightly.

The mule deer harvest consisted of 59 percent bucks, 27 percent does, and 14 percent fawns. Ratios per 100 does were 236 bucks and 52 fawns. This was an increase in the proportion of bucks and fawns as compared to the two previous years.

White-tailed deer consisted of 40 percent bucks, 34 percent does, and 26% fawns. Ratios of 143 bucks and 77 fawns per 100 does represent a somewhat higher proportion of bucks, and the same fawn proportion as in 1963.

At Darby there were 42 percent bulls, 40 percent cows, and 18 percent calves. Ratios per 100 cows were 106 bulls and 46 calves. These are similar to the 1964 ratios. In District 25, however, the proportion of bulls dropped, while in District 27 the proportion of bulls increased considerably.

At Darby, as at Bonner, the proportions of bucks and fawns in the mule deer harvest increased markedly. Percentage composition in 1964 was bucks - 69, does - 23, fawns - 9. Ratios per 100 does were 303 bucks and 38 fawns.

Age composition of deer and elk determined from dentition is shown for the Bonner and Darby station in Tables 11 & 12.

At Bonner, adult elk were classified as follows: 35 percent yearlings, 18 percent 2½ years, 28 percent prime and 1 percent old. There were 53 yearlings per 100 older elk, and 4 old per 100 other adults.

Adult mule deer consisted of 49 percent yearlings, 20 percent 2½ year, 23 percent prime and 7 percent old. There were 100 yearlings per 100 older, and 8 old per 100 other.

Adult white-tails consisted of 45 percent yearlings, 15 percent 2½ year, 34 percent prime and 6 percent old. Ratios were 81 yearlings per 100 older, and 6 old per 100 other adult.

Elk and mule deer at Darby showed a similar preponderance of younger animals in the harvest.

Deer weights are shown in Table 12-a. Small samples obtained at Darby indicated greater average weights of mule deer than at Bonner. Weights of mule deer and white-tails at Bonner were similar in most age classes.

Questionnaire Harvest Data

The District Two big game harvest from questionnaire returns was 5618 deer, 3069 elk, 490 bear, 5 bighorn sheep, 101 mountain goats, and 70 moose. The deer and elk harvest was lower and the bear harvest higher than in 1963. The numbers of moose, mountain goats, and bighorn sheep taken by hunters were somewhat lower than in 1963.

Deer Harvest

Deer harvest data by hunting district for 1964 are shown in Table 13. The number of deer hunters was 12,458 which is approximately 2000 less than

in 1964 and 4000 less than in 1962. There were fewer hunters in all units than in 1963, except in the Blackfoot Unit where the number remained approximately the same.

The harvest of 5618 deer represents a hunting success of 45 percent, compared to 48 percent in 1963. Hunting success declined slightly in all units except the Deer Lodge where it remained the same as in 1963. The deer harvest declined in all hunting districts except District 213 where a small increase occurred. The greatest total kills occurred in district 28 and 29 with harvests of 908 and 962, respectively.

Non-resident hunters harvested 5.6 percent of the deer taken in District Two. This is the same as in 1963.

The harvest density was .56 deer per square mile, compared to .69 in 1963. By way of contrast, the starvation loss counted on a sample winter range area was 67 dead deer per square mile during the 1964-65 winter. Districts 21 and 281 with kills of 1.35 and 1.09 deer per square mile had the greatest harvest densities.

The distribution of the dates of deer kills during the 1964 season is shown in Table 14. Only 1.6 percent of the deer harvest was taken before the general season opening. These were presumably kills made during the archery season and gun kills from one area, 280, which opened to deer hunting September 15. Only 28 percent of the deer kills were made during the first two weeks of the general season, while 34 percent were made during the fifth (last) week of the season. There were no extended seasons. The bulk of the harvest occurred later in 1964 than in 1963.

Antler class and species composition of the 1964 deer harvest are shown in Table 15. Antlered deer (bucks) comprised 59 percent of the harvest while 41 percent were antlerless (does and fawns). These percentages are the same as in 1963. Mule deer were reported to make up 59 percent of the harvest and white-tails 41 percent. In 1963 mule deer were reported to comprise 65 percent of the harvest. This agrees with checking station figures which indicated a bigger drop in the number of mule deer harvested than in the white-tails.

ELK HARVEST

The elk harvest, by hunting districts, from questionnaire returns, is shown in Table 16. The total number of elk hunters in District Two in 1964 was 15,411, a reduction of nearly 3700 since 1963. The number of elk hunters increased slightly in the Clark Fork Unit and declined in the other three units.

The district-wide elk harvest was 3069, nearly 800 less than in 1963. Small declines occurred in the Clark Fork, Blackfoot and Deer Lodge units, but the greatest reduction was in the Bitter Root Unit where conservative seasons and mild weather cut the harvest approximately 50 percent.

Greater numbers of elk were taken in hunting districts 20, 21, 28, 281, and 210 than in 1963.

Non-resident hunters took 11.3 percent of the elk harvest, compared to 9.5 in 1963. In the Bitter Root Unit non-residents took 16 percent of the elk harvest, and in hunting district 25, 21 percent were taken by non-residents.

Elk hunting success was 20 percent in 1964, which was the same as in 1963. Hunting success was 22 percent in the Clark Fork Unit, 24 percent in the Bitter Root, 19 percent in the Blackfoot, and 21 percent in the Deer Lodge.

The periods of greatest elk kill were October 18 - 21 and November 15 - 22 (Table 17). Approximately 30% of the harvest was taken in each period. Fourteen percent were taken during the early season, October 3-17. There were no extended seasons in 1964.

The reported sex-age composition of the 1964 elk harvest was 31 percent mature bulls, 13 percent spikes, 42 percent cows, and 14 percent calves (Table 18). There were ratios of 102 bulls and 33 calves per 100 cows. The ratio of spikes per 100 older bulls was 41. The proportion of bulls to cows was slightly lower than in 1963 and the calf-cow ratio was the same. The Blackfoot Unit had the highest proportion of yearling bulls and calves, indicating a relatively productive herd. It was followed in descending order by the Bitter Root, Deer Lodge and Clark Fork Units.

BEAR & SPECIAL BIG GAME SEASONS HARVEST

A total of 490 bears was killed by 2410 bear hunters in 1964 (Table 19). This is a success ratio of 20 percent. In 1963, 296 bears were killed. A difference in licensing requirements between the two years does not allow a valid comparison of the number of hunters and hunting success between the two years. A considerable number of grizzly kills (33) was reported. This was probably largely due to erroneous identification.

The 1964 harvest of bighorn sheep, mountain goats and moose is shown in Table 20. Eight sheep permits for mature rams were issued in two areas. Five sheep were killed for a 71 percent success ratio. At least 273 goat permits were issued in District Two. The holders of 238 of these hunted, and killed 101 goats for a success ratio of 42 percent. A total of 110 moose permits was issued. Of the 106 permit holders who hunted moose, 70 were successful for a 66 percent success.

Other Harvest Surveys

Guides and outfitters reports indicated that District Two outfitters guided 286 hunters in 1964 (Table 21). Seventy-eight percent were non-residents. The harvest of 183 animals consisted of 115 elk, 54 deer, 1 moose and 5 bear. The over-all hunting success was 64 percent compared to 69 percent in 1963, and 74 percent in 1962.

Mortality Surveys

The annual count of dead deer on the Clearwater sample plot was made on May 12, 1965. The remains of 50 dead deer were found on the 480 acre area.

This represented 67 dead deer per square mile, the highest winter loss since 1957. All of the identifiable remains were white-tailed deer. Twenty-six deer which could be classified as to sex and age consisted of 54 percent fawns, 35 percent bucks and 11 percent does.

Animal losses per square mile since the dead deer counts were begun are as follows:

1956 - 90	1961 - 8
1957 - 75	1962 - 39
1958 - 39	1963 - 6
1959 - 33	1964 - 44
1960 - 18	1965 - 67

POPULATION SURVEYS

Production

The results of classified counts of live deer are shown in Table 22. Most of the counts were made after the deer dropped their antlers, hence it was not possible to accurately identify the sex. Consequently the proportion of bucks is too low in the sex ratios shown. Because bucks and does could not be separated, reliable fawn-doe ratios could not be obtained either. The fawn-adult ratios are used as indices of production and are probably useful to indicate trends. Data for the Deer Lodge Unit are shown in the A-2 report.

Age ratios of white-tails were 38 fawns per 100 adults in the Clark Fork Unit and 35 in the Blackfoot. Samples from the Bitter Root and Deer Lodge were too small to be significant.

Mule deer fawn-adult ratios were 26 in the Clark Fork, 30 in the Bitter Root, 39 in the Blackfoot, and 48 in the Deer Lodge units. There appeared to be a considerable decline in production or survival of fawns between 1964 and 1965 in all units but the Deer Lodge.

The results of classified counts of elk are shown in Table 23. The bull-cow ratio of the district sample was 26 bulls per 100 cows. This is conservative since bulls are seen in disproportionately small numbers, especially in counts made from the ground. For example, in the Bitter Root sample, only 11 bulls per 100 cows were seen from the ground. However, 61 bulls per 100 cows were seen during aerial counts in the East Fork.

The district calf-cow ratio was 42 calves per 100 cows. Calf-cow ratios of separate management units were 47 calves per 100 cows for the Clark Fork, 44 for the Bitter Root, 36 for the Blackfoot and 41 for the Deer Lodge. These ratios do not agree with the harvest questionnaire results, which indicated the best production in the Blackfoot and the poorest in the Clark Fork.

Population Trend and Distribution Surveys

Aerial trend counts of elk were made in the Bitter Root Unit during the spring. The coverage was very thorough and the count obtained is believed to be one of the most nearly complete counts on record. Even so, an unknown number of elk were missed, especially in the rugged, heavily-timbered west-side and West Fork areas. The highest counts were obtained during the latter part of April. A total of 2424 elk was counted in the Bitter Root Unit (Table 24). Of these 1629 were on the east side of the drainage, from Miller Creek to Lost Trail Pass. This compares with 1149 in 1964 and a previous high count of 1604 in 1958.

A total of 795 elk were counted in the Bitter Root drainage west of Highway 93. These were distributed as follows: 283 between Mormon Creek and Tin Cup Creek, 153 between Tin Cup Creek and Horse Creek Pass, and 359 in the triangle between the West Fork and Highway 93. Previous counts for these areas are chiefly spot counts.

During the winter, aerial surveys were made in portions of the other three management units. Results of flights in the Deer Lodge unit are in the A-2 report. Flights in the Clark Fork and Blackfoot units did not provide complete coverage, but elk numbers observed in some key areas compare favorably with previous aerial counts. Relatively high elk populations were found in the St. Regis area, the Graves Creek Range, the Blackfoot-Clearwater Game Range, Ovando Mountain and Markham Mountain.

TRAPPING, MARKING AND TRANSPLANTING

Two tag returns of native elk were received following the 1964 hunting season (Table 25). One was from a bull trapped and tagged at the Pasture Draw trap (East Fork Bitter Root) in February, 1962. It was shot in the East Fork of the Bitter Root in October, 1964. The other was from a cow tagged on the Blackfoot-Clearwater Game Range in December, 1955 and shot on Shanley Creek, the opening day of the season in 1964.

Recent tag returns from Yellowstone Park elk, released in the Blackfoot Unit are shown in Table 26. Most of the returns (28) were from two transplants totalling 72 elk released on the Blackfoot-Clearwater Game Range in February and March 1964. Twenty-five of these were killed in the Boyd Mountain area of the Game Range, one near Salmon Lake and two from Chamberlain Creek in the Garnet Range.

Reports of sightings of these elk indicate that some of them moved considerable distances from the release site (Table 27). Nine sightings (other than killed animals) were made in hunting district 28 (B-C Game Range and vicinity); one in district 15 (Youngs Creek, South Fork Flathead); one in 26 (East Bitter Root); eight in district 29 (Garnet Range); one in district 281 (Markham Mtn.); and one in district 39 (Deep Creek portion of the Big Hole drainage).

Tag returns and sightings of elk in the Deer Lodge Unit are presented in the A-2 report.

Totals of 75 elk and 21 mule deer were trapped, tagged and released at five trap sites in the Bitter Root Unit during January and February, 1965. Tagging data are shown in Tables 28 and 29.

Thirty Yellowstone elk were released in the Olson Gulch area near Anaconda, February 11, 1965. Tagging data are shown in Table 30.

GAME DAMAGE

Game damage to private property increased during the 1964-65 winter. A total of 17 complaints was received compared to 11 during 1963-64. Elk were involved in 14 cases and deer in three (Table 31). Damage to haystacks was the most frequent complaint, occurring in two cases of deer damage and 12 cases of elk damage. One complaint each was received of elk damage to orchards and pasture, and deer damage to young wheat.

RECOMMENDATIONS:

- 1 - Deer hunting regulations should be adjusted to provide a greater deer harvest. Mild weather during the general hunting season has prevented an adequate harvest during the past two years, and surplus deer have been removed by starvation. Later seasons, or season reopenings, in problem areas would probably be the most effective harvest measures.
- 2 - Range survey transects should be evaluated and superfluous ones eliminated. An attempt to obtain information on species composition and density in key areas should be made.
- 3 - Classification counts of deer and elk should be done as early in the winter as possible to facilitate identification of sex and age groups. This applies to both aerial and ground counts.
- 4 - The possibility of making elk trend counts in spring rather than winter should be explored in areas other than the Bitter Root where spring counts have been found more effective than winter counts.
- 5 - Elk movement investigations in the West Fork area of the Bitter Root should be initiated with a trapping and marking program.

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Date November 4, 1965

Table 1. Grass condition and trend on key elk winter ranges

Sample Unit	Spec.	Year	No. Plants	Form Class -		% HC & CE	Condition Rating	Density Index(ft.)	Max.leaf Height	% with seed
				Normal	Young					
B-C Game Range (Elk Basin)										
#245	Fesc	1962	100	43	0	57	Fair	1.31	1.10	86
#245	Fesc	1963	100	35	3	62	Poor	.97	1.04	18
#245	Fesc	1964	100	31	1	68	Poor	.84	1.07	39
#274	Fesc	1962	100	61	1	38	Good	1.52	1.48	98
#274	Fesc	1963	100	71	3	26	Good	1.18	1.37	21
#274	Fesc	1964	100	80	2	18	Excellent	1.03	1.48	37
Baldy Mtn.(So. of Lincoln)										
#212	Fesc	1962	100	54	4	42	Fair	.52	1.02	20
#212	Fesc	1963	100	38	4	58	Fair	.40	1.10	32
#212	Fesc	1964	100	82	0	18	Excellent	.36	1.17	72
Alice Creek (Lewis & Clark Pass)										
# 25	Fesc	1962	50	0	12	88	V.Poor	.98	.68	4
# 25	Fesc	1963	50	2	0	98	V.Poor	1.04	.73	80
# 25	Fesc	1964	100	10	3	77	Poor	.80	.75	3
State Prison Ranch										
So. Am. Park	Fesc	1963	100	11	2	87	V.Poor	.76	.59	11
So. Am. Park	Fesc	1964	100	15	0	85	V.Poor	.76	.52	45
Robinson Park	Fesc	1963	100	28	0	72	Poor	.39	.77	29
Robinson Park	Fesc	1964	100	27	0	73	Poor	.55	.76	50
Robinson-Elk	Feid	1963	100	46	0	54	Fair	.58	.40	37
Robinson-Elk	Feid	1964	100	45	1	54	Fair	.77	.34	50
Bitter Root Game Range										
# 1	Feid	1962	50	68	6	26	Good	1.22	.48	56
		1963	50	78	2	20	Excellent	1.24	.42	56
		1964	50	71	5	24	Good	1.58	.47	54

Table 2. Grass utilization on key winter elk ranges, 1964-65

Sample Unit	Spec.	Year	No. Plants		% Grazed	% Use	Pellet groups/acre	
			Total	grazed			Deer	Elk
Bitter Root Game Range								
#1	Feid	1963	50	8	16	10	---	---
#1	Feid	1964	32	7	22	12	---	---
#1	Fesc	1964	18	6	33	24	---	---
#1	Feid	1965	54	31	57	44	---	---
#1	Fesc	1965	46	46	100	75	0	311
B-C Game Range								
#245	Fesc	1963	100	53	53	40	0	120
#245	Fesc	1964	100	73	73	55	10	180
#245	Fesc	1965	100	64	64	47	0	160
#274	Fesc	1963	100	11	11	7	0	40
#274	Fesc	1964	100	18	18	13	0	20
#274	Fesc	1965	100	14	14	12	0	40
Baldy Mountain								
#212	Fesc	1963	100	2	2	2	20	20
#212	Fesc	1964	100	8	8	6	---	100
#212	Fesc	1965	100	17	17	12	20	95
Alice Creek (Lewis & Clark Pass)								
# 25	Fesc	1963	50	2	4	2	0	20
# 25	Fesc	1964	100	96	96	73	0	820
# 25	Fesc	1965	100	38	38	31	10	135
# 26	Fesc	1964	---	---	---	---	---	1320
# 26	Fesc	1965	100	86	86	65	---	605
Prison Ranch								
So. Am. Park	Fesc	1963	100	94	94	71	0	260
	Fesc	1964	100	96	96	73	0	460
	Fesc	1965	100	85	85	65	10	216
Robinson Park	Fesc	1963	100	75	75	58	0	800
		1964	100	92	92	70	0	600
		1965	100	88	88	67	0	330
Robinson-Elk	All	1963	100	56	56	42	0	310
	All	1964	100	85	85	66	0	140
	All	1965	100	91	91	68	10	170

Table 3. Relative forage consumption by cattle and elk on Prison Ranch winter elk range, 1964-65

Sample Unit	Grass species	Percent Utilization		% used by:	
		Fall 1964	Spring 1965	Cattle	Elk
So. Am. Park	Fesc	56	65	56	9
Robinson Park	Fesc	47	67	47	20
Robinson-Elk	Feld	60	68	60	8
Average		54	66	54	12

Table 3a. Forage consumption on elk summer range in the Skalkaho Game Preserve

Location	Grams of forage(green weight) 0.96 sq. ft.		Unprotected site	Utilization by:		
	Inside gopher- & elk-free cage	Inside elk-free cage		Elk	Gophers*	Total
Pond basin	-	69	52	24%	-	24%
Creek basin	99	81	38	53%	9%	62%

*Pocket gophers, Thomomys sp.

Table 4. Browse transect data, 1965

Hunting district & Transect Location	Plot No.	Key Species	Plants No.	% %	Class 3 & 6	Leader Use %	Percent Decadent	Pellet groups/acre Deer Elk Other		
<u>District 20.1</u>										
Tamarack Creek		Amal	25	-	80	72	64	20	190	50 cow
Tamarack Hill		Amal	25	-	92	90	80	--	--	--
Jermyn Ranch		Amal	25	-	84	86	68	--	--	--
Patrick Creek		Amal	25	-	84	73	56	460	20	80 cow
Patrick Creek (Exclos)		Amal	25	-	48	90	8	300	90	
Boyd Mt. Foraker		Amal	25	-	84	89	52	290	80	
Boyd Mt.-Drexal		Amal	25	-	52	84	12	280	60	
Powderhouse Springs		Amal	25	-	88	88	84	110	20	
Subtot. & Ave.			200		76.5	84.0	53.0	243	77	
<u>District 20</u>										
Beacon Hill		Amal	25	-	88	78	52	170	20	
Keystone, Dry Gu.	907	Prun	25	-	68	88	60	150	200	
Second Cr.		Amal	25	-	16	4	12	50	0	
Micayune Gu.	902	Amal	25	-	40	9	56	0	0	
So. Nemote Cr.	901	Amal	25	-	8	21	8	60	20	
Crystal Sprgs.		Amal	25	-	16	69	28	440	15	
Freezeout Gu.		Amal	25	-	100	89	88	888	46	
Nigger Gu.	926	Amal	25	-	88	86	60	880	0	
Kitchen Cr.		Amal	25	-	100	90	80	180	0	
Eddy Cr.		Amal	25	-	80	86	48	460	10	
Soudan		Prun	10	-						
		Amal	10	-	55	73	35	100	0	
Subtotal & Ave.			270		59.9	63.0	47.9	307	28.3	
Total of D-20			470		67	72	50	285	45	
<u>District 21</u>										
Fournier Cr.	950	Amal	25		20	64	20	140	60	
Sixmile	951	Amal	25		88	68	84	120	100	
Butler Cr.-high	945	Amal	25		40	25	32	130	50	50 cow
Butler Cr.-low	1001	Amal	25		72	23	88	290	10	
Remount Post	1000	Amal	25		36	10	44	20	5	
Ellis Cr.	944	Amal	25		20	18	56	90	0	
Ninemile Hill		Amal	25		100	90	100	--	--	
Total & Ave.			175		53.7	42.6	60.6	132	38	
<u>District 22</u>										
Whiskey Gulch	904	Amal	25		16	36	28	180	34	
Trout Cr. burn	--	Amal	25	-	80	86	80	240	500	
Dry Cr., upper	--	Amal	25		84	61	56	260	210	
Dry Cr., Excl	507	Amal	25		76	30	68	260	120	
Fish Cr.,Blacktail	506	Amal	25		20	19	32	70	10	
Trail Cr. East	505	Amal	25		4	17	4	80	0	
Trail Cr. West	955	Amal	25		0	2	4	100	0	
Clearwater Crssg.		Inaccessible- road washed out								
Cold Cr. - lower		Amal	25		92	82	48	50	280	
Cold Cr.- upper		Amal	25	-	80	56	36	30	160	
Little Joe Cr.		Amal	25	-	8	11	0	0	100	

Table 4. Browse transect data, 1965 (continued)

Hunting District & Transect Location	Plot No.	Key Species	Plants No.	%	% Class 3 & 6	Leader Use %	Percent Decadent	Pellet groups/acre Deer Elk Other		
District 22 (cont'd)										
Thompson Peak	-	Amal	25	-	48	23	48	380	130	20 horse
Johnson Ranch	509	Amal	25	-	56	50	44	40	60	
Total & Ave.			300		47.0	39.4	37	141	134	
District 23										
Woodchuck Gulch		Putr	25		8	4	60	20	0	80 horse
Little Park Cr.		Putr	25		12	80	8	190	20	
Deadman Gulch	932	Amal	25		52	33	92	40	40	
Hayes Cr.	933	Amal	10		70	90	60	0	80	
Deep Cr.	934	Amal	10		10	50	20	30	0	20 horse
Petty Cr. pasture		Amal	25		12	35	48	40	10	
Albert Creek		Amal)	30		10	36	10	0	140	-
		Acer)								
West Fork Petty		Amal	20	80)	0	40	12	80	40	50 horse
		Prun	5	20)						
Tank Creek		Amal	25	--	44	34	48	40	120	
Sawmill Creek		Amal	45	90)						
		Prunus	3	6)	62	65	66	130	30	
		Acer	2	4)						
Helean Landing	941	Amal	25	100	44	69	44	260	40	
Wall Creek	942	Amal	25	100	8	36	16	140	0	
Wig Creek		Inaccessible - road washed out								
West Fork Butte-Lower	927	Amal	25		32	35	28	66	5	
West Fork Butte-Middle		Amal	15		33	60	13	72	36	
West Fork Butte-Upper		Amal	25		80	80	36	198	144	0
Camp Creek-Lower		Amal	10	-	40	47	50	246	0	70 cow
Clark Creek		Amal	25	-	20	36	20	90	36	
Burdette-Low		Amal	25	-	8	5	8	5	44	
Burdette - Mid.		Amal	25	-	68	49	64	10	250	
Burdette - Upper		Amal	25	-	76	68	68	--	--	
Golder road		Amal	10		0	32	10			
		Prunus	10		10	29	30	60	140	
Holoman Cr.	C-2	Amal	50		34	30	12	25	5	
Total & Ave.			545		33.1	46.0	36.5	83.0	56.2	
Clark Fork Total			1490		49.0	52.5	44.0	161.8	67.5	
District 24										
Sweeney Creek		Amal	23	92)	24	87	20	380	200	-
Sweeney Creek		Salix	2	8)						
Larry Creek		Amal	10		50	88	20	220	140	60 horse
Smith Creek		Amal	19	38)	12	75	56	470	40	50 moose
Smith Creek		Salix	31	62)						
Gash Creek		Amal	25	-	35	27	25	20	0	
Cow Creek		Salix	6	24						
Cow Creek		Amal	19	76	16	52	76	90	0	-

Table 4. Browse transect data, 1965 (continued)

Hunting District & Transect Location	Plot No.	Key Species	Plants No.	% Class 3 & 6	Leader Use %	Percent Decadent	Pellet groups/acre		
							Deer	Elk	Other
<u>District 24 (cont'd)</u>									
Roaring Lion		Prun	16 64)						
		Amal	4 16)	8	45	44	10	30	
		Sal	5 20)						
Lost Horse		Amal	25 -	28	66	48	100	60	
Como		Putr	25 -	20	47	64	20	20	60 moose
Bear Creek		Amal	4 16)						
		Prun	21 84)	84	70	72	60	0	-
Total or average			235	30.1	61.9	47.2	152	54.4	12.2 moose
<u>District 25</u>									
Chaffin Creek		Putr	50 -	28	55	40	120	140	
Pierce Creek		Amal	10 20)						
Pierce Creek		Ceve	38 46)	33	17	74*	111	140	30 moose
Pierce Creek		Sal	2 4)						
Opposite Trapper Cr.		Putr	25 -	0	58	24	180	180	
Beavertail Creek		Amal	3)	58	33	26	20	80	-
Beavertail Creek		Prun	22)						
Lavene Creek		Sal)							
Lavene Creek		Ceve)	25	13	51	72	60	80	
Lavene Creek		Amal)							
Overwich		Amal	25	52	5	86	5	40	20 horse
Total & ave.			200	30.7	36.5	53.6	82.7	110.0	5 moose
<u>District 26</u>									
Eight-mile	201	Amal	44 88)						
Eight-mile		Prun	6 12)	48	4	78	20	0	
Three-mile		Prun	7 28)						
Three-mile		Amal	18 72)	32	6	72	0	0	
Ambrose Creek		Amal	25 -	32	65	12	70	70	
Sawmill Gulch	105	Amal	8 32)						
Sawmill Gulch		Prun	8 32)	16	51	28	100	140	
Sawmill Gulch		Salix	2 8)						
Sawmill Gulch		Acer	7 28)						
Willow Creek		Amal	24 96)	0	1	36	140	0	
Willow Creek		Prun	1 4)						
Skalkaho Creek									
Not checked in 1965									
Total & Ave.			150	25.6	25.4	45.2	66	42	
<u>District 27</u>									
Jennings Hill	511	Putr	50 -	56	82	52	100	80	
Kelly Hill		Putr	25 -	64	90	36	460	60	
Spring Gulch(E.Fk)		Putr	25 -	100	87	24	340	80	
Franklin Gulch		Putr	25 -	0	25	36	160	0	
Whisky Gulch		Putr	25 -	8	40	36	220	0	
Robbins Gulch		Putr	32 64)						
Robbins Gulch		Cele	18 36)	8	40	32	190	10	

Table 4. Browse transect data, 1965 (continued)

Hunting District & Transect Location	Plot No.	Key Species	Plants		% Class 3 & 6	Leader Use %	Percent Decadent	Pellet groups/acre		
			No.	%				Deer	Elk	Other
District 27 (continued)										
Spring Cr. (Rye Cr.)		Sal	1	4)						
		Amal	5	20)	40	69	20	30	210	40 moose
		Prvi	2	8)						
		Putr	17	68)						
Burke Gulch		Putr	25	-	0	46	72	140	10	
Harlan Gulch		Putr	25	-	32	56	48	120	40	
Jack Cr.		Putr	24	96)						
		Amal	1	4)	20	48	72	30	130	
Total & Ave.			300	-	32.8	58.3	42.8	179	62	4 moose
Unit total & ave.	30		885		30.1	49.5	46.7	133	66	
District 28										
O'Keefe Creek	3	Amal	50	-	48	77	22	60	40	
TV Mtn. Road	935	Amal	25	-	32	27	44	120	10	
Rattlesnake Cr.		Amal	13	-	90	88	80	92	0	
Marco Flat		Amal	25	-	52	69	44	80	0	
Twin Creek		Amal	25	-	60	68	60	140	20	
McNamara		Amal	25	-	28	59	4	104	0	
Sheep Flats		Amal	25	-	88	89	40	280	7	
Woodchuck	957	Amal	25	-	28	37	32	180	106	
Camp Nine-upper	953	Amal	25	-	44	67.2	52	164	0	
Camp Nine-Lower	812	Amal	25	-	16	71.4	16	240	20	
B-C Game R.-Upper	954	Amal	25	-	4	59.8	16	6	340	
B-C Game R.-Lower	817	Amal	25	-	24	53.8	36	5	280	
Oscars Landing	952	Acer	10	-	80	90	60			
		Amal	10	-	40	71.5	20	260	80	
Salmon Lake Hills	517	Amal	25	-	60	88	68	220	0	
Placid Lake Hills	-	Prunus	20	-	4	25.2	28	46	54	
Shanley Cr.-Upper		Amal	25	-	40	10	40	20	80	
Shanley Cr.-Lower		Amal	25	-	24	25	28	7	180	
Ovando Mtn.		Amal	16)	64	68	80	80	0	200	
		Acer	9)	36						
McCabe Cr.		Amal	6	24)						
McCabe Cr.		Acer	8	32)	40	34	64	0	30	
McCabe Cr.		Prvi	11	44)						
Total & Ave.			453		41.3	58.6	38.2	107	76	
District 29										
Nevada Cr. (Deer Cr.)	D4-21	Prvi	25		32	37	36	150	38	
Nevada Cr.	959	Amal	10		10	82	10)	126	6	
		Prunus	10		30	69	50)			
Cramer Cr.	808	Prunus)	20	-	0	1	0	20	0	
		Acer	)							
Nimrod		Putr	25	-	40	90	40	170	0	
Rattler Gulch	600	Putr	25	-	92	86	88	480	0	24 cow
Hoover Creek	516	Putr	25		100	89	80	360	0	-

Table 4. Browse Transect Data, 1965 (continued)

Hunting District & Transect Location	Plot No.	Key Species	Plants No.	%	% Class 3 & 6	Leader Use %	Percent Decadent	Pellet groups/acre Deer	Elk	Other
<u>District 29 (continued)</u>										
Carter Creek	527	Putr	25		88	80	84	104	0	-
Warm Springs	528	Putr	25		96	72	96	132	0	-
Poorman Ridge	D4-10	Prunus	25		68	82	80	240	0	-
Poorman - Lower	D4-4	Amal)	25		76	83	68	280	0	-
Baldy Mtn		Prun)								
Total & Ave.			240		57.5	69.5	60.2	206	4.4	
<u>District 281</u>										
Markham Mtn.	806	Amal	25		40	73	52	330	180	
Lower Lincoln Can.	958	Amal	20		100	90	76	260	14	
Upper Lincoln Can.	D4-6	Amal	25		0	31	60	50	17	
Karshaw Mtn.	D4-12	Amal	25		0	85	40	325	25	
Tot. & Ave.			95		35	69.8	57	241	59	
Unit tot. & ave.					46.9	64.0	48.4			
<u>District 210</u>										
Schwartz Cr.		Amal	25		24	21	44	114	0	
Kitchen Cr.		Prun	25		56	90	32	300	0	-
Brewster Cr.	956	Prun	25)		20	14	22	40	20	
		Amal	25)							
Welcome Cr.		Amal	25		24	1	40	108	0	6
Grizzly Cr.	930	Amal	10		10	10	20	40	0	se
Smart Creek	210-1	Prunus	25)		17	16	14	110	0	-
		Amal	10)							
Picket Gulch	C-1	Prunus	25)		23	30	35	170	0	
Picket Gulch		Amal	10)							
					26	26	30	126	3	
<u>District 212</u>										
Boulder Cr.	-	Cele	25		100	90	100	260	0	
Racetrack Cr.	948	Prvi	20		70	16	80	40	30	
Total & Ave.			45		85	53	90	150	15	
<u>District 213</u>										
Lost Creek	938	Acer	10		20	14	20	180	0	
Tin Can Gulch	937	Acer	10		50	72	60)	220	0	
Tin Can Gulch		Prunus	10		20	70	20)			
Foster Cr.	936	Amal	25		56	58	72	80	0	
Total & ave.			55		48.7	47.7	44	160	0	
<u>District 214</u>										
East Fork Res.	214-1	Amal	25		64	43	72	200	0	

Table 4. Browse Transect Data, 1965 (continued)

Hunting District & Transect Location	Plot No.	Key Species	Plants	% Class	Leader Use %	Percent Decadent	Pellet groups/acre			
			No. %	3 & 6			Deer	Elk	Other	
District 215										
Dry Cottonwood-upper	940	Putr	25	84	90	60	500	30		
Dry Cottonwood-lower		Putr	25	84	85	84	660	40		
Little Blackfoot	939	Putr	25	76	81	36)				
Little Blackfoot		Amal	25	24	58	32)	280	120		
Little Blackfoot (Dana)		Putr	25	96	89	68	140	20		
Total & ave.			125	73	81	56	395	53		
Total Unit (1965)			455	49	50	48	202	15		

Table 5. Browse condition and utilization trend by hunting districts

District	Year	No.	No.	% class	Condition	Leader	Pellet	groups/acre
		Plots	Plants	3 & 6	class	Use -%	Deer	Elk
Clark Fork Unit								
20	1963	16	400	68	Very poor	37	145	22
	1964	18	420	42	Poor	64	329	31
	1965	19	470	67	Very poor	72	285	45
21	1963	5	120	32	Poor	38	131	120
	1964	7	200	44	Poor	37	116	36
	1965	7	175	54	Very poor	43	132	38
22	1963	13	325	51	Very poor	19	89	22
	1964	14	350	31	Poor	45	124	80
	1965	12	300	47	Poor	39	141	134
23	1963	21	465	39	Poor	8	36	33
	1964	25	547	24	Fair	34	73	44
	1965	22	545	33	Poor	46	83	56
Total Unit	1963	55	1310	48	Poor	22	92	36
	1964	64	1517	34	Poor	46	160	47
	1965	60	1490	49	Poor	53	162	68

Table 5. Browse condition and utilization trend by hunting districts (continued)

District	Year	No. Plots	No. Plants	% class 3 & 6	Condition class	Leader Use %	Pellet groups/acre	
							Deer	Elk
<u>Bitter Root Unit</u>								
24	1963	7	110	3	Excellent	14	94	23
	1964	10	290	27	Fair	55	315	105
	1965	9	235	30	Fair	62	152	54
25	1963	7	128	10	Excellent	3	20	39
	1964	7	180	28	Fair	36	66	122
	1965	6	200	31	Poor	37	83	110
26	1963	5	95	9	Excellent	3	36	32
	1964	6	150	29	Fair	25	67	8
	1965	5	150	26	Fair	25	66	42
27	1963	11	245	11	Good	23	57	18
	1964	11	325	25	Fair	53	246	64
	1965	10	300	33	Poor	58	179	62
Total Unit	1963	30	578	8	Excellent	13	54	26
	1964	34	995	27	Fair	45	198	78
	1965	30	885	30	Fair	50	133	66
<u>Blackfoot Unit</u>								
28	1963	16	410	39	Poor	29	64	37
	1964	18	445	38	Poor	60	149	45
	1965	19	453	41	Poor	58	107	76
29	1963	8	200	54	Very poor	42	125	0
	1964	11	260	50	Poor	57	234	18
	1965	10	240	58	Very poor	70	206	4
281	1963	3	75	57	Very poor	36	97	7
	1964	4	100	38	Poor	61	225	5
	1965	4	95	35	Poor	70	241	59
Total Unit	1963	33	820	48	Poor	34	69	33
	1964	38	950	41	Poor	59	162	39
	1965	33	788	47	Poor	64	241	59
<u>Deer Lodge Unit</u>								
210	1963	11	240	44	Poor	10	83	13
	1964	10	175	32	Poor	32	165	12
	1965	7	205	26	Fair	26	126	3
212	1963	2	50	73	Very poor	53	187	17
	1964	2	50	84	Very poor	69	140	18
	1965	2	45	85	Very poor	53	150	15

Table 5. Browse condition and utilization trend by hunting districts (continued)

District	Year	No. Plots	No. Plants	% class 3 & 6	Condition class	Leader Use %	Pellet groups/acre	
							Deer	Elk
<u>Deer Lodge Unit (continued)</u>								
213	1963	3	75	27	Fair	26	84	0
	1964	3	55	44	Poor	40	43	7
	1965	3	55	49	Poor	48	160	0
214	1963	1	25	68	Very poor	29	80	0
	1964	1	25	84	Very poor	69	140	18
	1965	1	25	64	Very poor	43	200	0
215	1963	3	75	67	Very poor	57	197	2
	1964	3	75	79	Very poor	73	127	13
	1965	4	125	73	Very poor	81	395	53
Total Unit	1963	20	465	49	Poor	20	106	7
	1964	19	380	50	Poor	46	131	12
	1965	17	455	49	Poor	50	202	15

Table 6. Numbers of big game animals and hunter trips checked at the Darby and Bonner stations, 1964

Station	Year	Elk	Mule deer	Whitetail deer	Black bear	Hunter trips
Darby	1962	504	208	9	3	3962
Darby	1963	395	219	3	22	3739
Darby	1964	212	141	6	15	1966
Bonner	1962	133	164	170	5	2123
Bonner	1963	156	170	125	5	1784
Bonner	1964	148	93	163	27	2063

Table 7. Distribution of kill locations of elk and mule deer checked at the Darby station, 1964

Species	Year	West Fork		Triangle		East Fork		Rye Creek		Total No.
		No.	%	No.	%	No.	%	No.	%	
Elk	1962	134	27	107	21	205	41	58	11	504
	1963	156	39	139	35	67	17	33	8	395
	1964	75	36	69	33	45	22	17	8	206
Mule deer	1962	52	25	57	27	64	31	35	17	208
	1963	55	25	57	26	69	32	38	17	219
	1964	29	21	12	9	59	42	39	28	139

Table 8. Distribution by time periods of elk and deer harvest checked at the Darby station, 1964

Species	Period	Males	Females	Young	Total		Ratio/100 ad. females	
					No.	%	Adult males	Young
Elk	Oct. 3 - 17	45	36	19	100	47	125	53
Elk	Oct. 18 - 31	8	4	3	15	7	200	75
Elk	Nov. 1 - 14	19	22	5	46	22	86	23
Elk	Nov. 15 - 22	17	22	12	51	24	77	56
	Total	89	84	39	212	100	106	46
Mule deer	Oct. 18 - 31	28	12	4	44	31	233	33
Mule deer	Nov. 1 - 14	44	15	5	64	46	293	33
Mule deer	Nov. 15 - 22	25	5	3	33	23	500	60
	Total	97	32	12	141	100	303	38

Table 9. Sex and age composition of big game animals checked at the Bonner station, 1962-1964

Species	Year	Ad. males		Ad. females		Young		Total No.	Ratio/100 ad. females	
		No.	%	No.	%	No.	%		Ad. males	Young
Elk	1962	56	42	54	41	23	17	133	104	43
	1963	60	39	66	42	30	19	156	91	45
	1964	47	32	69	47	32	22	148*	68	46
Mule deer	1962	90	55	51	31	22	14	163	176	43
	1963	95	56	57	34	18	11	170	167	32
	1964	55	59	25	27	13	14	93	236	52
W.T. deer	1962	85	49	51	30	36	21	172	167	71
	1963	52	42	41	33	32	25	125	127	78
	1964	64	40	56	34	43	26	163	143	77

*Includes 7 bulls and 15 cows transplanted from Yellowstone Park

Table 10. Sex and age composition of big game animals checked at the Darby station during the either sex season, 1962 - 1964*

Area & Species	Year	Ad. males		Ad. females		Young		Total No.	Ratio/100 ad. females	
		No.	%	No.	%	No.	%		Ad. males	Young
<u>Dist. 25</u>										
Elk	1962	110	46	99	41	32	13	241	111	32
	1963	119	41	115	39	57	20	291	103	50
	1964	50	35	66	46	28	19	144	76	42
Mule deer	1962	61	56	38	35	10	9	109	161	26
	1963	68	61	37	33	7	6	112	183	19
	1964	23	56	13	32	5	12	41	177	38
<u>Dist. 27</u>										
Elk	1962	109	41	106	40	48	18	263	103	45
	1963	39	40	41	42	17	18	97	95	41
	1964	39	57	18	26	11	16	68	217	61
Mule deer	1962	55	56	35	35	9	9	99	157	26
	1963	56	52	38	36	13	12	107	147	34
	1964	74	74	19	19	7	7	100	389	37
<u>Total upper Bitter Root</u>										
Elk	1962	219	43	205	41	80	16	504	107	39
	1963	158	42	156	39	74	19	388	101	47
	1964	89	42	84	40	39	18	212	106	46
Mule deer	1962	116	56	73	35	19	9	208	159	26
	1963	124	57	75	34	20	9	219	165	27
	1964	97	69	32	23	12	9	141	303	38

*A few additional bulls were killed during extended bull elk season in 1962 and 1963

Table 11. Age composition of mature deer and elk indicated by dentition, Bonner station, 1964

Species	Sex	Yearling		2½ Yr.		Prime		Old		Uncl. Ad.*		Total No.	Ylg./100 older	Old/100 other
		No.	%	No.	%	No.	%	No.	%	No.	%			
Elk	Male	14	35	5	13	18	45	1	3	2	5	40	54	3
	Female	13	34	9	24	14	37	2	5	0	-	38	52	6
	Both	27	35	14	18	32	41	3	4	2	3	78	53	4
Mule deer	Male	29	53	11	20	11	20	3	6	1	2	55	115	6
	Female	6	38	3	19	5	31	2	12	0	-	16	60	14
	Both	35	49	14	20	16	23	5	7	1	1	71	100	8
W.T. deer	Male	32	51	8	13	18	29	4	6	1	2	63	103	7
	Female	14	35	7	18	17	42	2	5	0	0	40	54	5
	Both	46	45	15	15	35	34	6	6	1	1	103	81	6

*Older than yearlings

Table 12. Age composition of mature deer and elk indicated by dentition, Darby station, 1964

Species	Sex	Yearling		2½ Yr.		Prime		Old		Uncl. Ad.*		Total No.	Ylg./100 older	Old/100 other
		No.	%	No.	%	No.	%	No.	%	No.	%			
Elk	Male	28	31	15	17	24	27	0	-	22	25	89	46	-
	Female	6	30	7	35	6	30	1	5	0	0	20	43	5
	Both	34	31	22	20	30	28	1	1	22	20	109	45	1
Mule deer	Male	44	51	10	12	13	15	0	-	29	34	86	105	1
	Female	2	29	3	43	2	29	0	-	0	-	7	40	-
	Both	46	49	13	14	15	16	0	-	29	31	93	98	-

*Older than yearlings

Table 12-A. Deer weights obtained at Bonner and Darby stations, 1964

Bucks					Does				
$\frac{1}{2}$ hr.	$1\frac{1}{2}$ yr.	$2\frac{1}{2}$ yr.	prime	old	$\frac{1}{2}$ yr.	$1\frac{1}{2}$ yr.	$2\frac{1}{2}$ yr.	prime	old
<u>Darby station - mule deer</u>									
No.	2	11	3	6	0	1	2	1	0
Ave. wt.	62.5	117.1	157	199.8	-	60	108.5	102	-
Range	61-64	100-143	144-171	166-245	-	-	105-112	-	-
<u>Bonner station - mule deer</u>									
No.	4	12	5	5	2	5	2	2	0
Ave. wt.	56.3	106.8	138.4	157.4	147.5	54.7	91.0	101.5	118
Range	44-64	98-114	112-168	145-180	105-190	44-62	85-97	95-108	112-124
<u>Bonner station - white-tailed deer</u>									
No.	11	19	5	8	3	13	4	1	4
Ave. wt.	56.5	107.8	128.2	170.6	187.7	52.5	90.5	93	112.3
Range	48-61	92-137	113-136	140-198	180-198	39-59	76-99	-	110-119

Table 13. District Two deer harvest, 1962-1964

Unit and Hunting District	Year	Deer harvest by:		Total	Area (sq.mi.)	Kill per sq.mi.	No. hunters	Hunting success
		Res.	Non-res.					
<u>Clark Fork</u>								
20	1962	473	40	513	420	1.22	1070	48
	1963	290	24	314	420	.75	582	54
	1964	254	34	288	420	.69	651	44
21	1962	315	8	323	275	1.17	854	38
	1963	396	16	412	275	1.50	992	42
	1964	363	7	370	275	1.35	778	48
22	1962	645	55	700	610	1.15	1493	47
	1963	670	49	719	610	1.18	1163	62
	1964	433	48	481	610	.79	1049	46
23	1962	402	14	416	530	.78	1018	41
	1963	610	24	634	665	.95	1305	49
	1964	564	23	587	665	.88	1421	41
Total unit	1962	1835	117	1952	1835	1.06	4435	44
	1963	1966	113	2079	1970	1.06	4042	51
	1964	1614	112	1726	1970	.88	3899	44
<u>Bitterroot</u>								
24	1962	301	0	301	595	.51	1250	24
	1963	183	8	191	595	.32	803	24
	1964	158	23	181	595	.30	626	29
25	1962	430	39	469	675	.69	911	52
	1963	183	33	216	675	.32	610	35
	1964	132	21	153	675	.23	542	28
26	1962	430	8	438	670	.65	919	48
	1963	153	24	177	535	.33	316	56
	1964	108	1	109	535	.20	316	35
27	1962	301	24	325	585	.56	928	35
	1963	228	33	261	585	.45	864	30
	1964	207	21	228	585	.39	486	47
Total unit	1962	1462	71	1533	2525	.61	4008	38
	1963	716	90	806	2390	.34	2509	32
	1964	605	66	671	2390	.28	1970	34
<u>Blackfoot</u>								
28	1962	731	24	755	870	.87	1684	45
	1963	1020	0	1020	870	1.17	2133	46
	1964	873	36	908	870	1.04	2173	42

Table 13. District Two deer harvest, 1962-1964 (continued)

Unit and Hunting District	Year	Deer harvest by:		Total	Area (sq.mi.)	Kill per sq.mi.	No. hunters	Hunting Success
		Res.	Non-res.					
29*	1962	1176	31	1207	1430	.84	2112	57
	1963	1265	16	1281	1430	.90	2197	58
	1964	938	24	962	1430	.67	1674	57
280	1962	57	8	65	220	.30	160	41
	1963	61	65	126	345	.37	251	50
	1964	89	21	110	345	.32	203	54
281	1962	229	8	237	400	.59	538	44
	1963	396	33	429	275	1.56	734	58
	1964	286	14	300	275	1.09	594	51
Total unit	1962	2193	71	2264	2920	.78	4494	50
	1963	2742	114	2856	2920	.98	5315	54
	1964	2186	95	2280	2920	.78	4644	49
<u>Deer Lodge</u>								
210	1962	1104	39	1143	1060	1.08	1667	69
	1963	442	9	451	1095	.41	961	45
	1964	338	12	350	1095	.32	711	49
211	1962	86	0	86	245	.35	229	38
	1963	92	8	100	245	.41	123	81
	1964	50	2	52	245	.21	115	45
212	1962	330	8	338	605	.56	575	59
	1963	244	24	268	605	.44	589	46
	1964	236	15	251	605	.41	515	49
213	1962	57	0	57	195	.29	201	28
	1963	30	0	30	195	.15	213	14
	1964	57	0	57	195	.29	116	49
214	1962	57	16	73	165	.44	231	32
	1963	76	24	101	165	.61	208	48
	1964	50	3	53	165	.32	143	39
215	1962	186	8	194	435	.45	481	40
	1963	199	8	207	435	.48	367	57
	1964	155	3	158	435	.36	358	44
Total unit	1962	1820	71	1891	2705	.70	3384	56
	1963	1084	73	1157	2740	.42	2461	47
	1964	886	35	921	2740	.34	1958	47
<u>Total Dist. 2</u>								
	1962	7313	328	7641	9985	.77	16,373	47
	1963	6535	400	6935	9985	.69	14,411	48
	1964	5304	314	5618	9985	.56	12,458	45

*Includes hunting district 290

Table 14. Time of kill of 1964 deer harvest, percent

Hunting District	Before Oct. 18	Oct. 18-31	Nov. 1-14	Nov. 15-22	After Nov. 22	Unknown	Sample no. killed
20	0	22	36	38	0	4	146
21	1	25	39	34	0	1	184
22	1	26	33	37	0	3	258
23	0	26	36	36	0	2	309
24	1	33	39	26	0	2	98
25	2	25	31	37	0	4	83
26	2	25	36	32	0	5	56
27	0	15	36	42	0	7	122
28	0	27	36	34	0	3	478
29 & 290	1	31	31	34	0	3	486
210	1	28	36	34	0	1	184
211	0	22	22	56	0	0	27
212	2	38	37	22	0	1	134
213	0	43	27	23	0	7	30
214	0	25	43	25	0	7	28
215	0	39	36	24	0	1	83
260	0	36	9	46	0	9	11
280	41	31	12	15	0	2	61
281	2	24	26	44	0	4	159
Total	1.6	28	34	34	0	3	2938

Table 15. Composition of 1964 deer harvest by species and antler class, from questionnaire data

Hunting District	Antlered deer		Antlerless		Mule deer		White-tails	
	No.	%	No.	%	No.	%	No.	%
20	159	57	121	43	155	55	129	45
21	194	53	174	47	72	20	295	80
22	270	58	199	42	224	48	242	52
23	342	58	243	42	271	47	311	53
24	99	55	82	45	100	56	77	44
25	92	61	59	39	132	87	19	13
26	61	57	46	43	85	82	19	18
27	142	63	84	37	206	92	19	8
28	478	54	412	46	332	37	554	63
29 & 290	592	62	366	38	659	70	286	30
210	220	63	131	37	286	82	61	18
211	36	71	15	29	46	92	4	8
212	134	54	114	46	195	80	49	20
213	29	52	27	48	53	96	2	4
214	38	74	13	26	51	100	0	0
215	99	63	58	37	148	96	6	4
260	7	37	12	63	11	61	7	39
280	70	64	39	36	72	65	38	35
281	187	63	109	37	173	59	121	41
Total	3250	59	2306	41	3269	59	2239	41

Table 16. District Two elk harvest, 1962-1964

Unit and Hunting District	Year	Elk harvest by:			Area (sq.mi.)	Kill per sq.mi.	No. hunters	Hunting success
		Res.	Non-res.	Total				
<u>Clark Fork</u>								
20	1962	258	31	289	420	.69	1323	22
	1963	183	16	199	420	.47	774	26
	1964	214	47	261	420	.62	932	28
21	1962	100	0	100	275	.36	575	17
	1963	76	0	76	275	.28	497	15
	1964	101	1	102	275	.37	590	17
22	1962	545	86	631	610	1.03	2049	31
	1963	472	41	513	610	.84	1800	29
	1964	341	66	407	610	.67	1604	25
23	1962	387	8	395	530	.75	1336	30
	1963	350	0	350	665	.52	1361	26
	1964	252	34	286	665	.43	1617	18
Total unit	1962	1290	125	1415	1835	.77	5283	27
	1963	1081	57	1138	1970	.58	4432	26
	1964	908	148	1056	1970	.54	4743	22
<u>Bitter Root</u>								
24	1962	258	24	282	595	.47	1465	19
	1963	152	33	185	595	.31	1331	14
	1964	106	12	118	595	.20	905	13
25	1962	516	47	563	675	.83	1746	32
	1963	366	114	480	675	.71	1624	30
	1964	204	53	257	675	.38	1302	20
26	1962	158	8	166	670	.25	1042	16
	1963	183	16	199	535	.37	530	38
	1964	46	7	53	535	.10	361	15
27	1962	416	62	478	585	.82	1880	25
	1963	290	8	298	585	.51	1404	21
	1964	132	24	156	585	.27	701	22
Total unit	1962	1348	141	1389	2525	.55	6133	25
	1963	991	171	1162	2390	.48	4889	24
	1964	488	96	584	2390	.24	3269	24
<u>Blackfoot</u>								
28	1962	301	24	325	870	.37	1456	23
	1963	335	8	343	870	.39	2182	16
	1964	420	20	440	870	.51	2200	20

Table 16. District Two elk harvest, 1962-1964 (continued)

Unit and Hunting District	Year	Elk harvest by:			Area (sq.mi.)	Kill per sq.mi.	No. hunters	Hunting success
		Res.	Non-res.	Total				
29	1962	401	8	409	1430	.29	2276	18
	1963	381	16	397	1430	.28	2800	14
	1964	258	4	262	1430	.18	1306	20
280	1962	29	23	52	220	.23	276	19
	1963	107	49	156	220	.71	419	37
	1964	86	30	116	220	.53	441	26
281	1962	86	0	86	400	.23	1126	8
	1963	92	16	108	400	.27	1216	9
	1964	111	13	124	400	.31	1050	13
Total unit	1962	817	55	872	2920	.30	5134	17
	1963	915	89	1004	2920	.34	6619	15
	1964	875	67	942	2920	.32	4997	19
<u>Deer Lodge</u>								
210	1962	57	0	57	1060	.05	727	8
	1963	92	8	100	1095	.09	832	12
	1964	125	11	136	1095	.12	691	20
211	1962	86	8	94	245	.38	338	28
	1963	46	8	54	245	.22	300	18
	1964	35	6	41	245	.17	227	18
212	1962	72	8	80	605	.13	647	12
	1963	137	16	153	605	.25	734	21
	1964	121	6	127	605	.21	641	20
213	1962	14	0	14	195	.07	173	8
	1963	46	0	46	195	.24	198	23
	1964	22	4	26	195	.13	158	17
214	1962	57	8	65	165	.39	280	23
	1963	46	0	46	165	.28	269	17
	1964	43	1	44	165	.27	186	24
215	1962	57	8	65	435	.15	747	9
	1963	122	16	138	435	.32	832	17
	1964	107	4	111	435	.26	583	19
Total unit	1962	343	32	375	2705	.14	2912	13
	1963	489	48	537	2740	.20	3165	17
	1964	453	32	485	2740	.18	2328	21
Total Dist.2	1962	3800	352	4152	9985	.42	19,482	21
	1963	3476	365	3841	9985	.38	19,103	20
	1964	2722	347	3069	9985	.31	15,411	20

Table 17. Time of kill of the 1964 elk harvest, percent frequency

Hunting District	Before Oct. 18	Oct. 18-31	Nov. 1-14	Nov. 15-22	After Nov. 22	Unknown	Sample number killed
20	11	23	18	44	0	4	141
21	0	31	29	40	0	0	52
22	28	25	17	28	0	1	218
23	1	28	26	45	0	0	152
24	37	33	15	13	0	2	60
25	31	21	17	28	0	2	140
26	0	50	29	21	0	0	28
27	20	11	23	42	0	4	84
28	2	44	25	27	0	2	228
29	2	24	28	43	0	4	134
210	3	40	33	21	0	3	72
211	36	18	27	18	0	0	22
212	2	50	24	24	0	0	66
213	0	71	14	0	0	14	14
214	4	35	35	17	0	9	23
215	0	32	47	21	0	0	57
280	55	19	16	9	0	2	64
281	9	29	20	39	0	3	66
Totals	14	30	23	31	0	2	1621

Table 18. Composition of the 1964 elk harvest by sex-age class from questionnaire data

Hunting District	% Bulls	% Spikes	% Cows	% Calves	Total No.	Bulls/ 100 cows	Spikes/ 100 bulls	Calves/ 100 calves
20	37	14	40	9	258	126	38	22
21	31	9	48	12	102	84	28	24
22	35	13	43	9	403	112	37	21
23	27	9	47	17	286	78	35	37
C.F. Unit	33	12	44	11	1049	94	36	26
24	26	4	55	14	118	55	16	26
25	23	16	46	15	255	87	71	33
26	18	31	43	8	51	113	178	18
27	44	11	32	12	151	171	25	37
B-R Unit	29	14	44	13	575	98	48	31
28	26	15	40	19	435	105	59	48
29	21	12	47	20	256	71	55	43
280	37	16	36	10	116	147	44	29
281	19	8	46	26	121	59	43	57
B-F Unit	25	14	42	19	928	92	54	46
210	36	10	44	10	137	105	26	23
211	44	10	41	5	41	129	22	12
212	38	13	39	11	128	128	33	28
213	48	22	30	-	27	237	46	-
214	52	-	39	9	44	135	-	24
215	35	15	32	17	111	156	44	53
D-L Unit	39	11	39	11	488	131	29	28
Total District	31	13	42	14	3038	102	41	33

Table 19. District Two bear harvest, 1964

Hunting District	No. hunters	Bears killed			Total	Hunter Success (%)	
		Black	Grizzly	Unknown			
<u>Clark Fork unit</u>							
20	120	28	0	0	28	24	
21	170	39	6	2	47	28	
22	211	40	7	1	48	23	
23	260	34	6	0	40	15	
Total unit	761	141	19	3	163	21	
<u>Bitter Root unit</u>							
24	191	23	0	0	23	12	
25	128	33	2	2	36	29	
26	94	25	2	0	27	29	
260	4	0	0	0	0	0	
27	141	33	2	0	35	25	
Total unit	558	114	6	2	121	22	
<u>Blackfoot unit</u>							
28	460	100	6	2	108	23	
29	141	23	0	0	23	16	
280	102	20	0	0	20	20	
281	113	10	0	0	10	9	
290	8	0	0	0	0	0	
Total unit	824	153	6	2	161	20	
<u>Deer Lodge unit</u>							
210	73	19	0	0	19	26	
211	43	10	0	0	10	23	
212	59	2	0	0	2	3	
213	24	4	2	0	6	24	
214	21	0	0	0	0	0	
215	47	8	0	0	8	17	
Total unit	267	43	2	0	45	17	
District 2 Total	1964	2410	451	33	7	490	20
	1963	5693	-	-	-	296	5
	1962	5889	-	-	-	209	3.5

Table 20. District Two harvest of bighorn sheep, mountain goats and moose

Species	Hunting District	Permits issued	No. who hunted	Percent success	Animals killed	No. males	No. females	No. young	Unknown
Sheep	25	3	3	67	2	2	0	0	0
	220	<u>5</u>	<u>4</u>	<u>75</u>	<u>3</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>0</u>
	Total	8	7	71	5	5	0	0	0
Goats	24	100	82	44	35	23	12	0	0
	25	25	21	48	10	9	0	0	1
	212	10	10	20	2	2	0	0	0
	213	3	3	67	2	2	0	0	0
	214	15	13	46	6	6	0	0	0
	222	30	24	75	18	15	2	0	1
	261	5	5	40	2	1	1	0	0
	270	50+	50	28	14	13	0	0	0
	280	25	21	48	10	7	2	0	1
	281	<u>10</u>	<u>10</u>	<u>20</u>	<u>2</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>
	Total	273	238	42	101	80	17	0	4
Moose	23	10	10	20	2	1	1	0	0
	24	5	4	100	4	2	2	0	0
	25	15	15	60	9	2	6	1	0
	26	5	5	0	0	0	0	0	0
	27	20	18	72	13	8	4	1	0
	212	15	15	80	12	4	6	0	2
	214	5	5	100	5	3	2	0	0
	216	5	5	80	4	3	0	0	1
	217	10	10	80	8	5	2	0	1
	218	5	3	100	3	1	1	0	1
	219	<u>15</u>	<u>15</u>	<u>80</u>	<u>12</u>	<u>6</u>	<u>4</u>	<u>2</u>	<u>0</u>
	Total	110	106	66	70	35	28	4	5

Table 21. Big game harvest reported by licensed outfitters

Unit	Hunters		Elk					Deer					Other			Total	%
	Res.	Non-res.	Bulls	Cows	Calves	Unk.	Total	Bucks	Does	Fawns	Unk.	Total	Moose	Goats	Bear	Kills	Success
Clark Fork	51	96	30	28	8	0	66	17	8			25			2	93	63
Bitter Root	4	32	6	8	1		15	4	4			8	1	6	1	31	86
Blackfoot	8	90	10	17	5		32	15	2	2	1	20		2	2	56	57
Deer Lodge	0	5		1	1		2	1				1				3	60
Dist. Tot. 1964	63	223	46	54	15	0	115	37	14	2	1	54	1	8	5	183	64
Dist. Tot. 1963	68	229	60	64	11	2	137	32	11	0	10	53	3	8	5	206	69
Dist. Tot. 1962	110	221	99	66	19	1	185	34	7	0	7	48	3	8	2	246	74

Table 22. Deer sex and age ratios, winter and spring, 1964-65

Hunting District	Bucks	Does and uncl. ads.	Total adults	Fawns	Bucks/100 does & uncl. adults	Fawns/100 does & uncl. adults	Fawns/100 ads.
<u>White-tailed deer</u>							
<u>Clark Fork unit</u>							
20	9	64	73	35	14	55	48
21	6	33	39	15	18	45	38
22	5	7	12	1	71	--	--
23	5	35	40	12	14	34	30
Total unit	25	139	164	63	18	45	38
<u>Bitter Root unit</u>							
Total unit		5	5	0	--	--	--
<u>Blackfoot unit</u>							
28	11	124	135	46	9	37	34
281	0	5	5	2	--	--	--
29	6	13	19	7	46	54	37
Total unit	17	142	159	55	12	39	35
Total white-tails	42	286	328	118	15	41	36
<u>Mule deer</u>							
<u>Clark Fork unit</u>							
20	14	26	40	10	54	38	25
22	15	50	65	11	30	22	17
23	7	39	46	18	18	46	39
Total unit	36	115	151	39	31	34	26
<u>Bitter Root unit</u>							
24	1	7	8	2	14	29	25
25	7	14	21	2	50	14	10
26	9	61	70	29	15	48	41
27	34	97	131	36	35	37	27
Total unit	51	179	230	69	28	39	30
<u>Blackfoot unit</u>							
28	10	52	62	28	19	54	45
281	4	56	60	16	7	29	27
29	9	88	97	42	10	48	43
Total unit	23	196	219	86	12	44	39
Total mule deer	110	490	600	194	22	40	32

Table 23. Elk sex and age ratios, winter and spring, 1964-65

Area	Adult bulls		Spike bulls		Cows		Calves		Bulls /100 cows	Spikes/ 100 older bulls	Calves /100 cows	Sample size
	No.	%	No.	%	No.	%	No.	%				
20	15	16	5	5	52	55	23	24	39	33	44	95
22	0	--	2	6	22	61	12	33	9	--	55	36
23	4	19	1	5	11	52	5	24	45	25	45	21
Total unit	19	13	8	5	85	56	40	26	32	42	47	152
24	6	9	4	6	41	62	15	23	24	67	37	66
25	0	--	1	--	15	--	5	--	--	--	33	21
27-ground	2	--	6	--	121	--	57	--	7	--	47	186
27-aerial	177	--	48	--	371	--	130	--	61	27	35	726
Total unit	185	18	59	6	548	55	207	21	45	32	38	999
28	8	10	6	8	47	61	16	21	30	75	34	77
281*	13	13	6	6	58	59	22	22	33	46	38	99
29*	15	24	9	15	28	45	10	16	86	60	36	62
Total unit	36	15	21	9	133	56	48	20	43	58	36	238
Total Deer Lodge											41	

*helicopter counts, aerial counts in hunting district 27 were made with a Piper Super-cub

Table 24. Aerial elk trend counts and distribution surveys

Area	No. elk counted		
	1957-58	1963-64	1964-65
<u>Bitter Root Unit</u>			
<u>East side</u>			
Miller Cr.-Eight-Mile	96	49	65
Eight-mile - Burnt Fork	40	75	135
Burnt Fork - Willow Creek	97	46	73
Willow Creek - Skalkaho Cr.	399	240	360
Sub-total	632	410	633
Skalkaho-Sleeping Child	--	69	116
Sleeping Child-Little Sleeping Child	--	50	108
Little Sleeping Child-Deer Hollow	--	53	106
Deer Hollow-Rye Creek	--	31	28
Sub-total	321	203	372
Rye Creek-Sula Point	22	72	100
French Basin	--	151	114
Bunch Gulch-Martin Creek	--	143	158
Camp Creek-Meadow Creek	--	170	252
Sub-total	651	536	624
Total East side	1604	1149	1629
<u>West Side</u>			
	1960		
Mormon Creek-Carlton Creek	--		64
Carlton Cr.-Mill Creek	117		87
Mill Creek-Tin Cup Creek	--		132
Sub-total	--		283
Tin Cup Creek-Trapper Creek			119
Trapper Creek-Beaver Creek			34
Sub-total			153
Hughes Cr.-Piquette Cr.			178
Piquette Cr.-Warm Springs Cr.			
(Shook Mtn)	107		114
Warm Springs Cr.-Camp Cr.	64		67
Sub-total			359
Total West side			795
Total Bitter Root			2424

Table 24. Aerial elk trend counts and distribution surveys (continued)

	No. elk counted		
	1956	1963-64	1964-65
Clark Fork Unit			
Cut-off bridge to Seven-mile Cr.	8		22
Tamarack Cr.	21		56
Mayo Gulch	11	60	29
Mullan Gulch	8		7
Bald Hill (Keystone Mtn.)	5		32*
Total, portion Dist. 20	53		116
Sleeman Cr.-O'Brien Creek	91		18
O'Brien Cr.-Deep Creek	27		36
Deep Cr.-Albert Creek	--		51
Albert Creek-Tank Creek	12		24
Tank Cr.-Madison Gulch-Petty Pasture)		22	14
West Fork Petty Creek)	22		56
South Fork Petty Cr.)			21
Burdette-Lupine Cr.)	58	168	84
Total, portion Dist. 23	190		304
Blackfoot Unit			
	1957-58		
O'Keefe Cr.-Rattlesnake Cr.)	58	**	26
Rattlesnake Cr.-Gold Creek)		**	5
Gold Cr.-Belmont Cr.	9	tracks	**
Belmont-Blanchard	87	45	17
Blanchard-Seeley Lake	22	7	36
Seeley Lake-Cottonwood	43	7	6*
B-C Game Range	59	87	119
Cottonwood-Monture	13	8	**
Monture-Dick Creek	9	3	10
Ovando Mtn.	110	69	141
North Fork-Coopers Lake	8	**	**
Markham-Mineral Mtn.	51	24	64*
Lincoln Canyon	11	1	19*
Beaver Cr.-Rogers Pass	**	128	53
Rogers Pass-Bedrock Cr.(E. of Divide)	**	**	63
Total, portions Dist. 28 & 281	480	410	559

* Counts made from the ground

** Area not covered, or incompletely covered

Table 25. Tag returns, native elk, 1964-65

Tag Nos.	Sex	Release Data			Recovery Data	
		Age	Date	Location	Date	Location
<u>Bitter Root</u>						
H2325	Bull	Ad.	7/22/62	Pasture Draw	10/64	E. Fork Bitter Root
<u>Blackfoot</u>						
H3181	Cow	Ad.	12/27/55	B-C Game Range	10/18/64	Shanley Creek Sec. 9, T16N, R13W

Table 26. Tag returns, transplanted elk from Yellowstone Park

Tag Nos.	Sex	Age	Release Data		Date	Recovery Data	
			Date	Location		Date	Location
S2189	F	Ad.	2/13/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2190	-	$\frac{1}{2}$	2/13/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2191	M	$\frac{1}{2}$	2/13/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2194	F	$\frac{1}{2}$	2/13/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2197	F	$\frac{1}{2}$	2/13/64	B-C Game Range	11/8/64	(29)	Chamberlain Cr.
S2198	M	$\frac{1}{2}$	2/13/64	B-C Game Range	10/30/64	(28)	Powell Cr.
S2701	M	$\frac{1}{2}$	2/13/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2702	M	$\frac{1}{2}$	2/13/64	B-C Game Range	10/19/64	(28)	B-C Game Range
S2708	F	Ad.	2/13/64	B-C Game Range	10/19/64	(28)	B-C Game Range
S2710	-	$\frac{1}{2}$	2/13/64	B-C Game Range	10/64	(28)	Salmon Lake
S2713	F	$\frac{1}{2}$	2/13/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2753	F	Ad.	2/13/64	B-C Game Range	10/26/64	(28)	B-C Game Range
S2755	F	Ad.	2/13/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2756	F	Ad.	2/13/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2761	M	$\frac{1}{2}$	2/13/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2763	F	Ad.	2/13/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2767	F	Ad.	2/13/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2784	F	Ad.	3/6/64	B-C Game Range	10/25/64	(29)	Chamberlain Cr.
S2788	F	$\frac{1}{2}$	3/6/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2789	F	Ad.	3/6/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2791	F	Ad.	3/6/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2793	M	$\frac{1}{2}$	3/6/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2796	F	Ad.	3/6/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2797	M	$\frac{1}{2}$	3/6/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2798	F	Ad.	3/6/64	B-C Game Range	10/22/64	(28)	B-C Game Range
S2799	F	$\frac{1}{2}$	3/6/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S2200?	F	-	--	B-C Game Range	10/18/64	(28)	B-C Game Range
Collar only	M	$\frac{1}{2}$	2/13/64	B-C Game Range	10/18/64	(28)	B-C Game Range
S1624	F	$\frac{1}{2}$	1/25/63	Brock-Warm Springs Cr.	11/4/64	(29)	Hoover Creek

Table 27. Reported sightings of neck-banded elk released on Blackfoot-Clearwater Game Range, February and March 1964

No. Seen	Month	Location	Hunting District
1	March, 1964	B-C Game Range, Sperry Mtn.	28
1	March, 1964	E-L Ranch (near junction Blackfoot & Clearwater rivers)	29
1	July, 1964	No. end Salmon Lake	28
1	July, 1964	Woodworth	28
1	July, 1964	Drew Creek	28
1	July, 1964	Young's Creek	15
1	July, 1964	Douglas Creek, SW of Helmville	29
1	August, 1964	Wallace Creek, E. of Clinton	29
1	August, 1964	E. of Woodworth	28
1	Sept., 1964	B-C Game Range, Boyd Mtn.	28
1	October, 1964	Charley's Gulch E. of Hamilton	26
25 shot	October, 1964	B-C Game Range, Boyd Mtn.	28
1 shot	October, 1964	Chamberlain Cr., Garnet Range	29
1 shot	November, 1964	Chamberlain Cr., Garnet Range	29
1	November, 1964	Top-O-Deep, Garnet Range	29
2	December, 1964	B-C Game Range, Elk Basin	28
1	December, 1964	Rattler Gulch, Garnet Range	29
1	March, 1965	Markham Mountain	281
1	-- , 1964-65	Deer Creek, Big Hold drainage	319
1	April, 1965	Spooner Creek, Bitter Root	26

Table 28. Elk trapped and tagged at four trap sites in the Bitter Root Unit, January-February, 1965

Trap Site	No. Elk				Tag Numbers
	Bulls	Cows	Calves	Total	
South Gird		10	1	11	H 1311-12, H 1396-97 H 1398-99, H 1146-47 H 1106-07 to H 1110-11 H 1158-59 to H 1164-65
Bitter Root Game Range	1	3	5	9	H 1335-36 to H 1349-50 H 1376-77
Pasture Draw	4	19	6	29	H 1290-91 to H 1292-93 H 1296-97 to H 1298-99 H 1301-2 to 1309-10 H 1313-14 to H 1321-22 H 1327-28 to H 1331-32 H 1361-62 to H 1369-70 H 1126-27 to H 1334-35 H 1142-43 to H 1144-45*
Barley Ridge	4	16	6	26	H 1323-24 to 1325-26 H 1333-34, H 1136-37 H 1351-52 to H 1359-60 H 1112-13 to H 1122-23 H 1138-39 to H 1140-41 H 1166-67 to H 1168-69 H 1171-72 to 1183-84
Totals	9	48	18	75	

*Retrap, tag no H 1274

Table 29. Mule deer trapped and tagged at two trap sites in the Bitter Root Unit, January-February, 1965

Trap Site	No. Deer				Tag Numbers
	Bucks	Does	Fawns	Total	
Roaring Lion	3	5	2	10	H 1281-82, H 1283-89, H 1284-85, H 1286-94, H 1287-88, H 1295-1300 H 1150-51 to H 1156-57 H 1371-72, H 1373-75 H 1378-79 to H 1394-95
Bitter Root Game Range	3	3	5	11	
Totals	6	8	7	21	

Table 30. Yellowstone elk released at Olson Gulch, Deer Lodge County, February 11, 1965

Bulls	No. Elk		Total	Tag Numbers*
	Cows	Calves		
8	16	5	29	S 2234 to S 2236 S 2238 to S 2249 S 2280 S 2282 to S 2294
	1-no tag		1	
Total				
8	17	5	30	

*All had pink plastic ear markers in addition to one metal tag in each ear.

Table 31. Damage to private property by game, 1964-65

Hunting district	Game species	No. of damage cases to:				Total
		Haystacks	Orchards	Pasture	Grain Field	
21	deer	1				1
22	elk	1				1
23	elk	1				1
	deer				1	1
24	elk	2	1			3
27	elk	3				3
29	elk	1				1
29	deer	1				1
210	elk	2				2
211	elk	1				1
214	elk	1				1
281	elk			1		1
Total	deer	2			1	3
	elk	12	1	1		14

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W-72-R-11
A-1
1966

STATE DOCUMENTS

JOB COMPLETION REPORT RESEARCH PROJECT SEGMENT

State of Montana Name Wildlife Investigations, District Two
Project No. W-72-R-11 Title Big Game Surveys & Investigations
Job No. A-1 District-wide
Period Covered July 1, 1965 to June 30, 1966

ABSTRACT:

Grass condition transects on some important winter elk ranges in the Bitterroot Unit indicated "fair" to "excellent" range condition on five sites, and "poor" condition on three sites. Most areas showed an improving trend.

In the Deer Lodge Unit, two sites were in "fair" condition and five in "poor" or "very poor" condition. Most areas showed a deteriorating trend.

Grass utilization by elk during the 1965-66 winter was generally lower than during the previous winter.

Browse utilization was less than during the two preceding winters. This was believed to be a function of the mild winter. Utilization was still considered excessive on approximately one-third of the 156 browse transect sites.

Browse condition during the past two years showed appreciable improvement only in the Bitterroot Unit. In the other three units browse condition remained approximately the same as in 1964.

Full time checking stations were operated at Darby, Bonner and St. Regis. Numbers of each big game species, hunter trips and sex and age information for harvested animals were recorded at each station.

Harvest questionnaire returns indicated a district-wide kill of 6204 deer, 2690 elk, 300 bear, 62 moose, 74 goats and 5 bighorn sheep. The deer harvest was higher, and the elk harvest lower than in 1964. Hunting success was 51 percent for deer and 21 percent for elk, indicating better success for deer and about the same for elk as compared to 1964. Hunter numbers for both elk and deer declined.

Reports from guides and outfitters indicated that 62 percent of their clients killed game in 1965, compared to 64 percent in 1964.

Herd composition counts during the 1965-66 winter showed district-wide ratios of 46 fawns per 100 adults for white-tailed deer and 43 for mule deer. This indicated somewhat better production or survival than in 1964-65.

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Elk herd composition counts showed a ratio of 37 calves per 100 cows, about the same as in the previous winter.

Aerial elk trend counts were made chiefly in the Bitterroot Unit. Counts were slightly less on the east side of the Bitterroot drainage, and greater on the west side in 1966 than in 1965. A milder winter made counting more difficult in 1966, and the counts are believed to indicate an increasing elk population.

A winter census of bighorn sheep on Rock Creek showed a reduced population and declining production. The number of carcasses found during the winter indicated appreciable mortality from various causes.

Seven tagged native elk and one mule deer were reported taken from the Bitterroot Unit by hunters. Tags from 14 transplanted Yellowstone elk throughout District 2 were also returned. Two re-sightings of transplanted neck-banded elk were reported.

Totals of 47 elk and 4 mule deer were trapped and tagged at five trap sites in the Bitterroot Unit.

Thirty Yellowstone elk were released at Warm Springs Creek in the Garnet Range.

Few game damage complaints were received during the year.

OBJECTIVES:

To obtain quantitative data for the management of big game species in District Two. Information concerning range conditions, population conditions and trend, and harvest will be collected in a systematic manner. The data will be tabulated and presented in reports for use by the Commission in setting big game seasons.

TECHNIQUES USED:

Range surveys were conducted according to standardized procedures described in the Department's Range Survey Guide. Joint readings of range transects were made with the Forest Service in some areas. General range inspections and appraisal of range conditions were performed in areas not sampled by study plots.

Classified counts of deer and elk were made during the winter and early spring to determine the production and survival of young. Classification of elk was performed by aerial observation from helicopter and fixed wing aircraft and counts from the ground. Aerial trend counts of elk were made in some areas.

Checking stations were operated to collect data on harvest trend, sex-age composition and deer weights.

Total harvest estimates were obtained from questionnaire returns. Additional harvest data were taken from guides and outfitters reports.

Inspections were made of several proposed sites for transplants of Yellowstone elk.

Game damage complaints were tabulated.

Elk and deer were trapped and marked at five trap sites in the Bitter Root Unit. Relocations of tagged elk were recorded and tabulated.

FINDINGS:

RANGE

Grassland Condition & Utilization

Grass condition and trend for some key grass-land elk ranges in District 2 are shown in Table 1.

Improvement in grass condition was shown on the McClain Creek bald hill in district 23, and the Wetzsteon pasture in district 27. The condition of Idaho fescue declined slightly on the Bitter Root Game Range.

Grass condition declined on all three transects on the State Prison Ranch. Two of these rated "poor" and one "very poor" in the fall of 1965.

Rough fescue on two transects on Lone Pine Ridge in district 211 (upper Rock Creek) rated poor and very poor, respectively.

On Hogback ridge in district 210, grass condition declined from "good" in 1964 to "fair" in 1965.

On eight transects, all palatable bunch grasses were recorded to show relative abundance and condition (Table 2). Rough fescue was in "very poor" condition, wherever it occurred. Idaho fescue varied from "poor" to "excellent". Blue bunch wheat grass varied from "very poor" to "good". Crested wheatgrass occurred on one transect and rated "excellent" in condition compared to "poor" and "very poor" for the three native bunch grasses. Ratings for these transects (all bunch grasses) were "poor" for the Overwhich bald hill (district 25) "fair" for the Bitter Root Game Range (district 26); "fair" for east Bunch Gulch and Shirley Mountain, "poor" for Reimel ridge; and "very poor" for Tolan, all district 27; "fair" for East Hill, and "very poor" for Babcock Mountain, both in district 210.

Grass utilization on some important elk ranges is shown in Table 3. Utilization was light on the Bitter Root Game Range in 1964, heavy in 1965, and moderate in 1966.

Use in 1966 was moderate on the McClain bald hill and Tolan ridge, light on Cow Creek (district 24) and heavy on Reimel ridge. Utilization on the Prison Ranch was lighter than in 1964 and 1965, but heavy on Modesty ridge which had been closely grazed by horses and cattle during the summer of 1965.

Browse Condition and Utilization

Browse survey data for individual transects are shown in Table 4. A summary by hunting district appears in Table 5.

Browse utilization during the 1965-66 winter was less than during the two preceding winters. This was largely due to the extremely mild winter, which allowed deer and elk to remain scattered at relatively high elevations during most of the winter. District-wide, the percent frequency of leader use averaged 38 percent in 1966, compared to 54% in 1965.

In spite of lower average use, some areas were still excessively used by deer or elk. These are as follows:

<u>District</u>	<u>Location</u>	<u>% class 3 & 6</u>	<u>% use</u>	<u>Principal class of game</u>
20.1	Whole winter range(8)*	41	64	deer, elk
20	Beacon Hill	60	71	deer, elk
21	Six-mile Creek	48	78	deer, elk
	Ninemile (Cayuse) Hill	100	61	deer
22	Dry Creek	40	67	deer, elk
	Cold Creek	48	55	deer, elk
	Murphy Creek	36	71	deer, elk
	Johnson Ranch	24	59	deer, elk
23	Bear Run Creek	12	72	deer
	Petty Cr. pasture	16	56	deer, elk
	Sawmill Gulch	34	53	deer
	Lower Fish Cr.	40	76	deer
	Upper West Fork Butte Cr.	75	58	deer, elk
	Upper Burdette Cr.	88	62	elk
24	Sweeney Creek	28	58	elk
	Larry Creek	20	63	deer, elk
25	Chaffin Creek	28	55	deer, elk
27	Sula Peak	40	80	deer
	East Fork (2)	44	62	deer
	Spring Gulch (Rye Cr.)	36	58	elk, moose
28	O'Keefe Creek	48	74	deer
	Rattlesnake Cr.	56	74	deer
	Sheep Flats	88	78	deer
	Camp Nine	34	64	deer
	B-C Game Range (3)	41	69	deer, elk
	Salmon Lake Hills	56	62	deer
	Ovando Mountain	57	69	elk

<u>District</u>	<u>Location</u>	<u>% class 3 & 6</u>	<u>% use</u>	<u>Principal class of game</u>
29	Lower Nevada Creek	88	59	deer
	Nimrod	40	70	deer
	Rattler Gulch	96	56	deer
	Hoover Creek	100	50	deer
281	Lincoln Canyon (4)	54	63	deer
212	Boulder Creek	100	52	deer
	Stewart Gulch	100	50	deer, moose
215	Little Blackfoot (2)	72	58	deer
	Dry Cottonwood (2)	82	73	deer

*Figures in parentheses refer to number of transects

There was some improvement in browse condition during the project year. District-wide, 44 percent of the plants were heavily hedged in 1965, compared to 37 percent in 1966. However, the browse condition rating still remained "poor", except in the Bitter Root Unit where browse showed sufficient improvement to be rated as "good". There were still problem areas, however, as indicated in the preceding list of excessively used locations.

HARVEST

Checking Stations

Full-time checking stations were operated at Darby, Bonner and St. Regis. Part-time stations were east of Lincoln, south of Sula and on lower Rock Creek.

Big game animals and hunter trips recorded at each station are shown in Table 6. Totals of 307 elk, 172 mule deer, and 2252 hunter trips were checked at Darby in 1965. These figures are higher than in 1964, but lower than in 1963. Fewer bear (3) were checked in 1965 than either 1963 or 1964.

At Bonner, totals of 162 elk, 205 mule deer, 215 white-tailed deer, and 2349 hunter trips were recorded. Elk numbers did not change much, but mule deer and white-tailed deer numbers increased. Only one bear was checked, compared to 27 in 1964.

At St. Regis totals of 122 elk, 65 mule deer and 35 white-tailed deer were recorded. This was the first year of operation. The primary purpose of this station was to establish a basis for an elk harvest quota in the area.

The part-time station east of Lincoln recorded 86 elk, 114 mule deer, 50 white-tailed deer and one bear. This appears to be a feasible site for checking game harvest from the upper Blackfoot drainage. Many Great Falls hunters use this area.

The part-time station on Rock Creek recorded only 9 elk, 19 mule deer and 6 white-tails. Future game checks here are not considered feasible.

The part-time station at Sula recorded so few animals that checks here were not considered necessary for a nearly total record of the elk kill in the upper Bitter Root.

The distribution of deer and elk harvest among the four segments of the upper Bitter Root drainage is shown in Table 7.

Sixty-five percent of the elk harvest came from hunting district 25 in 1965, and 35 percent from district 27. These proportions indicate some shift in harvest distribution since 1963 when 74 percent was taken from district 25, and 26 percent from district 27.

Approximately one-half of the deer harvest came from each hunting district in 1963 and 1965. However, in 1964 only 30 percent came from district 25. This was apparently the result of a regular deer season only in 1964. In the other two years there was an early deer season in district 25 in addition to the regular season. Thus, early deer seasons seem to enhance the deer harvest in district 25.

Composition of the harvest by sex-age classes is shown in Table 8. The adult sex ratio of the elk harvest was 119 bulls per 100 cows for the upper Bitter Root, compared to 106 in 1964. The mule deer harvest for the same area was 223 bucks per 100 does, compared to 303 in 1964. Age ratios were 60 calf elk per 100 cows, and 35 fawn mule deer per 100 does. These figures compare with 46 calves per 100 cows, and 38 fawns per 100 does in 1964. In 1965 the elk age ratio was 60 calves per 100 cows in district 25, compared to 50 calves per 100 cows in district 27.

The distribution of the elk and deer harvest by time periods for the Darby station is shown in Table 9. The periods of greatest kill for both deer and elk were the first two days of the season and the last week. Thirty-one percent of the elk harvest and 20 percent of the deer harvest occurred during the first two days. The proportion of bull elk taken was highest during the first half of the season, while the proportion of buck deer was highest during the last half. The proportions of both calf elk and fawn deer taken were higher during the last half of the season than the first half.

Age composition of the harvest by yearly age class for the Darby station is shown in Table 10. Samples obtained were rather small, particularly for mule deer. However, these data indicate that younger animals comprised the majority of the harvest. Yearlings were 35 percent of the adult elk harvest, and 47 percent of the adult mule deer harvest. Old animals (with smooth first molar) comprised 6 percent of the adult elk harvest and 3 percent of the adult mule deer harvest.

Game harvest data collected at the Bonner and Lincoln stations are shown in the A-2 Job Completion Report, Big Game Surveys & Investigations, Blackfoot Unit Re-check.

Game harvest data for the St. Regis station are shown in Tables 11 to 14. Approximately half of the elk and mule deer, and 60 percent of white-tails, checked at the St. Regis station were killed in hunting district 20.1. Between 40 and 45 percent of the elk and mule deer, but only 17 percent of the white-tails were taken in district 22. Very few animals from district 20 were checked.

Adult males outnumbered adult females slightly in all three species. Age ratios of the checked harvest were 29 calves per 100 cows for elk, 17 fawns per 100 does for mule deer, and 62 fawns per 100 does for white-tails.

Small samples of animals aged by dentition were obtained (Table 14). The ratio of 22 yearling cow elk per 100 older cows does not indicate a highly productive herd. This conclusion is also supported by the relatively low calf-cow harvest ratio. The sample of age-determined mule deer was small and apparently biased to older animals. The sample of white-tails was also too small to be significant.

Antler classes probably give a better indication of age distribution for males because of the larger samples and more random selection by the game checkers. These are shown in Table 15. Relatively low productivity for elk and mule deer is indicated by the low ratios of spike and two-point males to older males.

Questionnaire Harvest

The District Two big game harvest from questionnaire returns was 6204 deer, 2690 elk, 300 bear, 62 moose, 74 goats, and 5 bighorn sheep. In comparison with 1964, the number of deer harvested was higher, while the numbers of elk, bear, and goats were lower in 1965. The numbers of moose and bighorn sheep taken by hunters remained the same.

Deer Harvest

Deer harvest data by hunting districts are shown in Table 16. The total number of deer hunters was 12,084 in 1965, approximately 400 less than in 1964.

The harvest of 6204 deer represents a hunting success of 51 percent, compared to 45 percent in 1964. Two-deer seasons in some areas contributed to better success in 1965. Hunting districts 28 and 29, each with a harvest exceeding 1000 deer, were the most important deer harvest areas.

Distribution of the deer harvest by time periods is shown in Table 17. District-wide, 6 percent of the deer harvest was taken before the general season opening. This was because of early seasons in hunting districts 20.1 (part of 20), 22, 24, 25, 260 (archery) and 280. Thirty percent was taken during the first week of the general season, 35 percent November 1-14, and 27 percent during the last two weeks of the season.

Species composition, indicated by questionnaire returns, was 56 percent mule deer and 44 percent white-tails (Table 18). Fifty-eight percent were antlered bucks and 42 percent were does and fawns.

Elk Harvest

The elk harvest, from questionnaire returns, is shown in Table 19. The total number of elk hunters in District Two in 1965 was 12,575, approximately 2400 less than in 1964. The district-wide harvest was 2690, which was 379 less than in 1964. Hunting success remained about the same, 21 percent, compared to 20 percent in 1964. Hunting district 22 and 28 yielded the greatest harvest, approximately 350 elk in each area.

Distribution of the elk harvest by time periods is shown in Table 20. The questionnaire returns indicated 16 percent of the elk harvest was taken during the early season, 22 percent during the first week of the general season, 24 percent the next two weeks, and 34 percent during the last two weeks. In areas which had early season, (part of 20, 22, 24, 25 and 280) from 38 to 61 percent of the harvest was taken before the opening of the general season (October 24).

Sex-age composition of the elk harvest from questionnaire returns is shown in Table 21. The reported district harvest consisted of 36 percent mature bulls, 10 percent spike bulls (yearlings), 40 percent cows, and 14 percent calves. There were 117 bulls (including spikes) per 100 cows, 28 spike bulls per 100 older bulls, and 35 calves per 100 cows. Samples for most hunting districts were too small to give reliable data for individual districts.

Bear & Special Big Game Species Harvest

Questionnaire returns indicated that 1869 hunters killed 300 bear in District Two in 1965 (Table 21). These were all black bear except for an unconfirmed grizzly report from hunting district 212. Hunting success was 16 percent.

The 1965 harvest of moose, mountain goats and bighorn sheep is shown in Table 22. Of 110 moose permit holders, 107 hunted, and killed a total of 62 moose. Their success ratio was 58 percent.

Of 232 holders of goat permits, 185 hunted, and killed a total of 72 goats. Their success ratio was 40 percent.

A total of 10 bighorn sheep permits were issued, 5 each in district 25 and 220. All permit holders hunted, and reported killing 2 sheep in district 25, and 3 in district 220.

Other Harvest Surveys

Guides and outfitters reports indicated that 19 outfitters, whose reports were available, guided 84 resident and 195 non-resident hunters (Table 24). Their reported harvest of 172 animals consisted of 107 elk, 55 deer, 3 goats and 7 bear. The over-all hunting success was 62 percent, compared to 64 percent in 1964.

MORTALITY SURVEYS

Results of the annual dead deer count on the Clearwater study area are shown in the A-2 completion report. Winter losses in 1965-66 (a mild winter) amounted to 19 dead deer per square mile compared to 67 during the previous winter which was more severe.

POPULATION SURVEYS

Production

The results of herd composition counts of live deer are shown in Table 25. Because most of the counts were made after the bucks dropped their antlers, reliable buck-doe and fawn-doe ratios could not be obtained. The age ratio of 976 white-tailed deer classified was 46 fawns per 100 adults. Production or survival appeared better in the Blackfoot Unit (51 fawns per 100 adults).

In a district-wide sample of 1163 mule deer, there were 43 fawns per 100 adults. By management units there were 35 fawns per 100 adults in the Clark Fork, 42 in the Bitter Root, 44 in the Blackfoot, and 52 in the Deer Lodge. These ratios indicate generally better production or survival of fawns in 1965 than in 1964.

The results of elk composition counts are shown in Table 26. A district-wide sample of 1863 elk consisted of 137 branch-antlered bulls, 115 spike bulls, 1173 cows, and 438 calves. There were 21 bulls per 100 cows, 84 spikes per 100 older bulls, and 37 calves per 100 cows. By management units there were 31 calves per 100 cows in the Clark Fork, 36 in the Bitterroot, and 46 in the Blackfoot.

Distribution Surveys and Population Trend

Aerial trend counts of elk were made chiefly in the Bitterroot Unit during the spring of 1966. Aerial coverage was thorough, but elk were more scattered than during the previous spring, making them more difficult to count. Consequently, the resulting counts are conservative compared to the previous year. The total count for the Bitterroot Unit was 2482 elk, compared to 2424 in 1965. Detailed counts by area are shown in Table 27. Counts were somewhat lower on the east side and somewhat higher on the west side in 1966 than in 1965. Hunting District 24, with an increase of 77 elk, (27 percent) showed the greatest change. The results of aerial surveys in the Blackfoot Unit are shown in the A-2 report.

Bighorn Sheep Surveys

Bighorn sheep on the Rock Creek range were counted and classified during a drive census using University students. Additional composition data were obtained during periodic winter trips to the area. Annual counts for this sheep herd are shown in Table 28. This population appears to be declining in numbers and productivity from a peak population in 1961. During the 1965-66 winter, the remains of six sheep carcasses were found. One was known to be an illegal kill and two appeared to be predator kills. A local rancher believed several were killed illegally. A whole ewe carcass was found shortly after death. It was in an emaciated condition and was taken to the Hamilton Public Health Service Laboratory for necropsy. No lung worm infection was found. The teeth showed

uneven wear, which may have contributed to malnutrition. Nose bots were present, but were not believed to have caused death. No other morbid or traumatic conditions were found.

MOVEMENTS AND TRANSPLANTS

Seven tag returns of native Bitterroot elk and one mule deer, all trapped, tagged and released at the trap sites, were received following the 1965 hunting season (Table 29). These animals were all tagged during the 1964-65 winter, and killed in the fall of 1965. Recovery data will be combined with previous information to plot elk movements in the area.

Tag return data from Yellowstone Park elk released in District 2 and killed in 1965 are also shown in Table 29. Four returns were received from elk planted on the B-C Game Range in February 1964. Three of these were killed less than 10 miles from the release site, while one was killed 40 miles to the east.

Five returns were received from the transplant made on the State Prison Ranch in February, 1963. All were shot within hunting District 212. Four were within 10 miles of the planting site and one was about 15 miles away.

Two returns were received from the Olson Gulch plant, west of Anaconda, released in January, 1964. These were from Warm Springs Creek about 5 miles to the northwest.

Two returns from the February, 1965, transplant on Olson Gulch were both killed in the Big Hole drainage to the south of the release site.

One tag was returned from the Brock-Warm Springs plant in the Garnet Range made in January 1963. This elk was killed on Willow Creek in hunting District 212, about 8 miles south of the planting site.

Two re-sightings of neck-banded transplanted elk were reported. Both had white neck-bands showing they were part of the B-C Game Range releases in February and March, 1964. Both were seen in April, 1966, one at the head of Willoughby Creek, south-east of Stevensville in the Bitterroot Valley, and the other on Salmon Creek, north of Markham Mountain, in the Blackfoot drainage.

Totals of 47 elk and 4 mule deer were trapped, tagged and released at five trap sites in the Bitterroot Unit during January-March, 1966. Tagging data are shown in Table 30. The elk were fitted with plastic-covered collars to permit field identification.

The four mule deer were all trapped on the Bitterroot Game Range. They were two does and two fawns. Tag numbers were H-1371-72, H-1375-, 5658A-59A, and 5660A-61A.

Thirty Yellowstone elk were released at Warm Springs Creek in the Garnet Range in late February, 1966. Tagging data are shown in Table 31.

GAME DAMAGE

Game damage to private property was light during the 1965-66 period. Three complaints of elk damage, two to haystacks in the winter and one to pasture in the spring were received.

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Approved by: Wynn G. Freeman

Date: January 18, 1967

Table 1. Bunchgrass condition and trend on key elk winter ranges

Sample Unit	Spec.	Year	No. Plants	Form Class-%			Condition rating	Density index(ft)	Max. leaf ht.	% with seed
				Norm.	Yng.	HC&CE				
<u>McClain Cr. Bald Hill</u>										
	Agsp.	1962	50	26	46	28	Good	.83	1.21	42
	"	1965	50	64	16	20	Excel.	.62	.85	80
<u>B-R Game Range</u>										
#1	Feid	1963	50	78	2	20	Excel.	1.24	.42	56
	"	1964	50	71	5	24	Good	1.58	.47	54
	"	1965	38	71	5	24	Good	-	.42	74
<u>Wetzsteon Pasture</u>										
	Feid	1962	100	48	2	50	Fair	1.87	.37	73
	"	1965	100	52	13	35	Good	1.48	.28	15
<u>State Prison Ranch</u>										
So. Am. Park	Fesc	1963	100	11	2	87	V.Poor	.76	.59	11
	"	1964	100	15	0	85	V.Poor	.76	.52	45
	"	1965	100	5	0	95	V.Poor	.72	.52	-
Robinson Park	Fesc	1963	100	28	0	72	Poor	.39	.77	29
	"	1964	100	27	0	73	Poor	.55	.76	50
	"	1965	100	11	1	88	V.Poor	.68	.68	-
Robinson-Elk	Feid	1963	100	46	0	54	Fair	.58	.40	37
	"	1964	100	45	1	54	Fair	.77	.34	50
	"	1965	100	28	10	62	Poor	.77	.34	-
<u>Rock Creek</u>										
Lone Pine (Lower)	Fesc	1964	100	7	3	90	V.Poor	.57	.71	58
		1965	50	10	6	84	V.Poor	.85	.85	6
		1966	100	4	2	94	V.Poor	.55	.61	36
Lone Pine (Upper)	Fesc	1965	50	12	10	78	Poor	2.43	.97	10
<u>Hogback Ridge</u>										
	Fesc	1964	42	17	0	83	V.Poor	.69	.97	33
	Feid	1964	50	78	10	12	Excel.	.25	.55	26
	Agsp	1964	49	45	51	4	Excel.	1.13	1.13	10
	Total	"	141	48	21	31	Good	.76	-	-
	Fesc	1965	15	0	0	100	V.Poor	1.55	.80	33
	Feid	1965	25	36	20	64	Poor	.29	.44	28
	Agsp	1965	25	36	20	44	Fair	1.28	.97	44
	Total	"	65	37	8	55	Fair	.81	-	-

Table 2. Bunchgrass composition and condition on winter elk ranges, 1965

Sample Unit	Species	No. Plants	% Comp.	Density index	Form class - %			Rating	Max. leaf height	Percent w/seed
					Norm.	Yng.	HC&CE			
<u>Bitter Root Unit</u>										
<u>Overwhich Bald</u>										
Hill	Feid	37	37	-	19	13	68	poor	.38	0
	Agsp	63	63	-	6	10	84	V. poor	1.05	7
	Total	100	100	.45	11	11	78	poor	-	-
<u>B-R Game Range</u>										
	Feid	38	42	-	71	5	24	Good	.42	74
	Fesc	17	19	-	6	0	94	V. Poor	.86	29
	Agsp	35	39	-	49	8	43	Fair	1.16	74
	Total	90	100	.89	50	5	55	Fair	-	-
<u>E. Bunch Gulch</u>										
	Feid	37	37	-	41	13	17	Excel.	.39	16
	Fesc	6	6	-	17	0	83	V. Poor	.90	0
	Agsp	57	57	-	42	5	53	Fair	1.09	44
	Total	100	100	.34	40	4	56	Fair	-	-
<u>Reimel Creek</u>										
	Feid	46	46	-	15	17	68	Poor	.31	4
	Fesc	6	6	-	0	0	100	V. Poor	.53	0
	Agsp	32	32	-	3	3	94	V. Poor	1.05	25
	Ager	16	16	-	2	0	14	Excel.	1.10	50
	Total	100	100	.95	16	9	75	Poor	-	-
<u>Tolan Creek</u>										
	Feid	34	34	-	23	12	65	Poor	.43	18
	Fesc	1	1	-	100	0	0	V. Poor	.81	0
	Agsp	65	65	-	3	6	91	V. Poor	.98	9
	Total	100	100	.74	11	18	81	V. Poor	-	-
<u>Shirley Mountain</u>										
	Feid	16	20	-	38	6	56	Fair	.37	31
	Agsp	64	80	-	55	3	42	Fair	1.05	33
	Total	80	100	1.01	51	4	45	Fair	-	-
<u>Deer Lodge Unit</u>										
<u>Babcock Mtn.</u>										
	Fesc	12	24	-	0	8	92	V. Poor	.59	17
	Feid	19	38	-	32	10	58	Fair	.38	58
	Agsp	19	38	-	10	0	90	V. Poor	.99	47
	Total	50	100	.31	16	6	89	V. Poor	-	-
<u>East Hill</u>										
	Fesc	19	19	-	5	0	95	V. Poor	.66	21
	Feid	39	39	-	69	13	18	Excel.	.41	36
	Agsp	42	42	-	43	24	33	Good	1.01	52
	Total	100	100	.81	45	14	41	Fair	-	-

Table 3. Grass utilization on winter elk ranges

Sample Unit	Year	Species	No. plants	No. grazed	% grazed	% util	Pellet groups/acre		
							Deer	elk	other
B-R Game Range	1964	Feid	32	7	22	12	-	-	
		Fesc	18	6	33	24	-	-	
		Total	50	13	26	16	-	-	
	1965	Feid	54	31	57	44	-	-	
		Fesc	46	46	100	75	-	-	
		Total	100	77	77	60	0	311	
	1966	Feid	47	10	21	11	-	-	
		Fesc	15	14	93	70	-	-	
		Agsp	38	26	68	28	-	-	
		Total	100	50	50	37	0	48	
McClain Cr. bald hill	1966	Feid	42	15	36	21	-	-	
		Agsp	58	40	69	28	-	-	
		Total	100	65	65	26	5	64	
Cow Creek (Dist. 24)	1966	Feid	5	3	60	34	-	-	
		Fesc	2	1	50	37	-	-	
		Agsp	93	22	24	10	-	-	
		Total	100	26	26	16	74	10	15 horse
Reimel Creek	1966	Feid	7	6	86	49	-	-	
		Fesc	2	2	100	75	-	-	
		Agsp	22	21	95	39	-	-	
		Acer	19	18	95	-	-	-	
		Total	50	47	94	75	5	580	195 cow
Tolan Ridge	1966	Agsp	100	100	100	40	15	490	45 cow
<u>Prison Ranch</u>									
So. Am. Park	1964	Fesc	100	96	96	73	0	460	
	1965	Fesc	100	85	85	65	10	216	
	1966	Fesc	100	76	76	57	5	160	
Robinson Park	1964	Fesc	100	92	92	70	0	600	
	1965	Fesc	100	88	88	67	0	330	
	1966	Fesc	100	59	59	44	0	360	
Robinson-Elk	1964	All	100	85	85	66	0	140	
	1965	All	100	91	91	68	10	170	
	1966	All	100	32	32	20	5	260	
Modesty Ridge	1964	Fesc	50	13	26	19	20	120	
	1965	Fesc	50	15	30	22	-	10	140 horse
	1966	Fesc	50	45	90	68	0	0	horse, cow
Six-mile	1965	Fesc	50	44	88	67	48	240	
	1966	Fesc	50	50	100	75	60	310	

Table 4. Browse transect data, 1966

Hunting district & transect location	Plot no.	Key spec.	No. plants	% Class 3 & 6	Leader use %	Percent decadent	Deer	Elk	Others
District 20.1									
Tamarack Creek	FS #1	Amal	25	40	65	56	106	240	
Tamarack Hill		Amal	25	24	66	40	280	0	
Jermyn Ranch	FS #2	Amal	25	36	56	76	160	7	
Patrick Creek	909	Amal	25	68	49	76	500	74	
Patrick Creek(exclos)		Amal	25	8	78	16	360	94	
Boyd Mtn-Foraker	908	Amal	25	64	77	52	240	74	
Boyd Mtn-Drexel	906	Amal	25	20	59	20	340	35	
Powder House Sprg.		Amal	25	68	65	52	120	20	
Total & average	8		200	41	64	49	263	68	
District 20									
Beacon Hill		Amal	25	60	71	48	140	126	
Keystone-Dry Gulch	907	Prvi	25	52	81	68	28	148	
Second Creek		Amal	25	12	1	28	20	10	
Micayune Gu.	902	Prvi	-	-	-	-	-	-	
So. Nemote Cr.	901	Amal	25	4	16	4	30	60	
Crystal Springs		Amal	25	8	16	20	60	0	
Freezeout Gulch		Amal	25	100	84	100	460	0	
Nigger Gulch	810	Amal	25	92	90	68	360	0	
Kirchey Creek		Amal	-	-	-	-	-	-	
Eddy Creek		Amal	25	80	89	80	390	15	
Soudan		Amal	25	48	88	44	240	0	
Total & average	9		225	51	59	51	192	40	
District 21									
Fournier Creek	950	Amal	25	12	30	16	60	20	
Six-Mile Creek		Amal	25	48	78	56	70	60	
Butler Creek-high	945	Amal	25	40	50	32	110	200	
Butler Creek-low	1001	Amal	25	56	6	72	10	0	
Remount Pasture	1000	Amal	25	24	21	24	80	10	
Ellis Creek	944	Amal	25	24	41	52	80	70	
Ninemile Hill	943	Amal	25	100	61	100	80	0	
Total & Ave.	7		175	43	41	50	70	72	
District 22									
Whiskey Gulch	904	Amal	25	4	3	16	10	20	
Trout Cr. burn		Amal	25	40	21	40	30	210	
Dry Cr.-Marble Pt.	905	Amal	25	40	67	36	150	110	
Dry Cr.-N.exclos.	507	Amal	25	36	27	8	180	0	
Dry Cr.-S. exclos.		Amal	25	84	53	84	0	60	
Fish Cr.-Blacktail	506	Amal	25	12	33	20	100	90	
Trail Cr.-East	505	Amal	25	4	23	4	140	0	
Trail Cr.-west	955	Amal	25	0	35	0	130	40	
Clearwater Crossing		Amal	25	12	44	20	120	190	
Cold Creek-upper	510	Amal	25	38	43	60	100	54	
Cold Creek-lower		Amal	25	48	55	76	100	54	
Little Joe Cr.		Amal	-	-	-	-	-	-	
Murphy Cr. (Casey R.)		Amal	25	36	71	56	80	40	
Thompson Peak Rd.		Amal	25	40	20	52	140	10	
Thompson Creek		Amal	25	12	48	16	100	50	
Johnson Ranch	509	Amal	25	24	59	16	90	50	
Total & Ave.	15		375	31	40	34	98	65	

Table 4. Browse transect data, 1966 (continued)

Hunting district & transect location	Plot no.	Key spec.	No. plants	% Class 3 & 6	Leader use %	Percent decadent	Pellet groups/A		
							Deer	Elk	Others
District 23									
N. Woodchuck Gulch		Putr	25	4	2	44	0	10	
Bear Run Creek		Putr & Amal	40	12	72	24	310	0	
Little Park Cr. Ridge		Putr	25	24	23	20	20	0	
Golder Road		Prunus	25	0	3	0	-	-	
Deadman Gulch	932	Amal	25	52	2	96	10	10	
Hayes Cr. Ridge	933	Amal	10	80	27	80	0	20	
Deep Creek	934	Amal	10	20	42	40	10	0	60 horse
Albert Creek		Amal							
		Acgl	30	10	49	12	40	80	
West Fork Petty		Amal	25	0	10	4	0	40	
Petty Pasture		Amal	25	16	56	60	80	40	
Tank Creek		Amal	25	12	12	40	30	30	
Sawmill Gulch		Amal	50	34	53	70	90	5	
Helean Landing	941	Amal	25	40	76	44	100	0	
Wall Creek	942	Amal	25	20	59	24	-	-	
Wig Creek		Amal	25	0	4	20	20	0	
West Fork Butte-lower	927	Amal	25	4	5	28	20	0	40 cattle
West Fork Butte-middle		Amal	20	65	40	55	-	-	
West Fork Butte-upper		Amal	25	84	75	84	130	50	
Camp Cr.-lower		Amal	25	76	23	80	170	0	
Clark Creek - lower		Amal	25	80	3	100	30	10	50 cattle
Burdette Cr.-lower		Amal	25	8	28	8	70	200	
Burdette Cr. - mid.		Amal	25	32	6	32	10	260	
Burdette Cr. - upper		Amal	25	88	62	88	-	-	
Total & Ave.			230	33	32	46	60	40	
District 24									
Sweeney Cr.		Amal	25	28	58	8	40	300	
Larry Cr.	204	Amal	20	20	63	25	450	270	
Smith Cr.		All	25	16	47	68	240	20	
Cow Cr.		All	20	25	41	70	40	0	0
Roaring Lion		All	25	4	51	44	20	7	
Lost Horse		Amal	35	18	24	9	10	0	60 moose
Lake Como		Putr	25	16	38	60	0	0	40 moose
Bear Creek		All	25	12	15	40	100	0	
Total & Ave.	8		200	17	42	41	113	75	13 moose

Table 4. Browse transect data, 1966 (continued)

Hunting district & transect location	Plot no.	Key spec.	No. plants	% Class 3 & 6	Leader use %	Percent decadent	Pellet groups/A		
							Deer	Elk	Others
District 25									
Chaffin Creek	211	Putr	50	28	55	40	120	140	
Pierce Creek		All	50	0	22	52	280	20	20 moose
Opposite Trapper Cr.		Putr	50	0	30	24	180	60	
Beavertail Cr.		All	50	18	13	30	87	60	
Lavene Cr.		All	25	12	22	52	0	12	10 moose
Overwhich		Amal	25	4	1	72	20	30	10 horse
Total & Ave.	6		250	10	24	45	115	54	5 moose
District 26									
Eight-Mile Cr.	201	All	25	20	0.2	40	20	0	
Willow Creek		Amal	25	0	0.4	40	26	0	
Sawmill Cr.	105	All	25	4	16	8	30	10	
Ambrose Cr.	203	Amal	25	16	4	16	0	0	
Three-Mile Cr.	202	All	25	36	0	36	0	0	
Total & Ave.	5		125	15	4	28	15	2	
District 27									
Jennings Hill	511	Putr	25	24	59	84	118	0	
Kelly Hill	879	Putr	25	64	65	28	180	0	
Spring Gulch		Putr	25	40	80	36	350	3	
Franklin Gulch		Putr	25	0	16	76	27	0	
Whiskey Gulch		Putr	25	0	38	36	62	0	
Robbins Gulch	210	Putr	25	4	33	68	80	0	
Spring Gulch (Rye)		All	25	36	58	44	54	106	20 moose
Burke Gulch	209	Putr	25	0	17	40	60	0	40 horse
Harlan Gulch		Putr	25	28	41	36	50	60	
Jack Cr.		Putr	25	12	34	76	66	160	
Total & Ave.	10		250	21	44	52	105	33	
District 28									
O'Keefe Creek	-	-	-	-	-	-	-	-	
TV Mtn. road	935	Amal	25	32	12	44	20	40	
Rattlesnake Cr.		All	25	56	74	48	460	0	
Marco Flat		Amal	25	56	2	72	10	0	
Twin Creek		Amal	25	60	4	64	100	10	
McNamara		Amal	25	20	2	20	6	0	
Sheep Flats		Amal	25	88	78	80	200	10	
Woodchuck	957	Amal	25	12	4	20	40	10	
Camp 9 - Upper	953	Amal	25	36	66	44	110	10	
Camp 9 - Lower	812	Amal	25	32	61	44	185	0	
B-C G. Range-Upper	954	Amal	25	20	43	32	36	226	
B-C G. Range-Lower	817	Amal	25	24	75	16	10	200	
Oscars Landing	952	All	20	80	90	80	154	80	
Salmon L. Hills	517	Amal	25	56	62	68	180	0	
Placid Lake		Prvi	10	0	14	10	7	26	
Shanley Creek		Amal	25	60	4	72	-	-	
Shanley Cr.-Lower		Amal	25	16	27	16	10	70	
Ovando Mtn.		All	50	57	69	46	10	150	
McCabe Cr.		All	35	46	27	49	0	86	
Total & Ave.	18		465	42	40	46	90	54	

Table 4. Browse transect data, 1966 (continued)

Hunting district & transect location	Plot no.	Key spec.	No. plants	% Class 3 & 6	Leader use %	Percent decadent	Pellet groups/A		
							Deer	Elk	Other
District 29									
Nevada Creek	D4-9	Amal	25	88	59	64	237	0	
Nevada Cr. (Deer Cr.)	D4-21	Prvi	25	24	49	8	125	12	
Nevada Cr.	959	Amal	10	30	40	30	0	40	
Nevada Cr.	C4-11	Amal	25	72	24	76	180	0	
Cramer Cr.		All	20	5	2	15	10	0	
Nimrod		Putr	25	40	70	44	140	0	
Rattler Gulch		Putr	25	96	56	92	100	0	
Hoover Cr.		Putr	25	100	50	96	300	0	
Carter Cr.	527	Putr	25	96	56	96	40	0	
Warm Springs	528	Putr	25	100	16	100	10	0	
Poorman Ridge	D4-10	Prvi	25	32	58	28	-	-	
Poorman - Upper	D4-3-40	Amal	25	32	12	40	-	-	
Poorman - Lower	36(D4-4)	All	25	32	63	52	-	-	
Fish Cr. Ridge		Amal	20	0	19	0	40	40	
Cap Wallace Gulch		Amal	25	24	13	52	100	30	
Wallace Cr.		Amal	25	24	2	36	90	0	
Hogum Cr.	D-4-14	All	25	76	65	84	60	40	40 cow
Total & Ave.	17		400	51	38	54	102	12	
District 210									
Schwartz Cr.	928	Amal	25	32	8	56	150	0	
Kitchen Cr.	929	Prvi	25	16	14	16	200	0	
		Amal							
Brewster	956	Amal	25	32	11	36	86	26	14 moose
Welcome Cr.		Amal	25	64	13	84	120	40	
Grizzly Cr.		Amal	20	20	3	45	14	6	
Picket Gulch		Amal	25	48	18	64	150	0	
Moose Gulch		Artr	25	24	33	24	40	10	
Babcock Cr.-Mormon Sprg.		Amal	25	8	51	32	84	12	16 moose
W. Fk. Buttes		Artr	25	0	0	4	-	-	
Smart Creek		Prvi	25	40	27	28	160	0	
Total & Ave.	10		245	28	18	39	112	10	3 moose
District 212									
Boulder Cr.		Cele	25	100	52	100	120	0	
So. Boulder Cr.		Prvi	25	0	7	60	100	0	
Stewart Lake Rd.		Acgi	20	100	50	100	80	20	40 moose
		Ribes							
Racetrack Cr.	948	Prvi	25	36	15	56	150	50	
Total & Average	4		95	59	31	79	113	18	10 moose
District 213									
Lost Creek	938	All	20	25	15	65	70	0	
Tin Can Gulch	937	All	20	50	8	70	60	0	
Foster Creek	936	Amal	25	76	3	88	-	-	
Total & Average	3		65	50	9	74	65	0	

Table 4. Browse transect data, 1966 (continued)

Hunting district & transect location	Plot no.	Key spec.	No. plants	% Class 3 & 6	Leader use %	Percent decadent	Deer	Elk	Other
District 214 East Fk. Res.		Amal	25	92	41	96	-	-	
District 215									
Little Blackfoot (up)939		Putr	25	52	36	88	90	0	
Little Blackfoot (lower)		Putr	25	92	80	84	170	0	
Dry Cottonwood(upper)940		Putr	25	72	66	68	130	0	
Dry Cottonwood(lower)		Putr	25	84	80	92	160	0	
Total & average	4		100	75	66	83	138	0	

Table 5. Browse condition & utilization trend by hunting districts

Hunting district	Year	No. Plots	No. Plants	% Class 3 & 6	Condition class	Leader Use %	Percent decadent	Pellet groups/acre Deer	Elk
Clark Fork Unit									
20	1964	18	420	42	Poor	64	52	329	31
	1965	19	470	67	V.Poor	72	50	285	45
	1966	17	425	46	Poor	52	50	228	54
21	1964	7	200	44	Poor	37	57	116	36
	1965	7	175	54	V.Poor	43	61	132	38
	1966	7	175	43	Poor	41	50	70	72
22	1964	14	350	31	Poor	45	36	124	80
	1965	12	300	47	Poor	39	37	141	134
	1966	15	375	31	Poor	40	34	98	65
23	1964	25	547	24	Fair	34	39	73	44
	1965	22	545	33	Poor	46	37	83	56
	1966	23	585	33	Poor	32	46	60	40
Total Unit									
	1964	64	1517	34	Poor	46	46	160	47
	1965	60	1490	49	Poor	53	44	162	68
	1966	62	1560	37	Poor	43	45	120	52

Table 5. Browse condition & utilization trend by hunting district (continued)

Hunting district	Year	No. Plots	No. Plants	% Class 3 & 6	Condition class	Leader Use %	Percent decadent	Pellet groups/acre Deer	Elk
Bitter Root Unit									
24	1964	10	290	27	Fair	55	61	315	105
	1965	9	235	30	Fair	62	47	152	54
	1966	8	200	17	Good	42	41	113	75
25	1964	7	180	28	Fair	36	50	66	122
	1965	6	200	31	Poor	37	54	83	110
	1966	6	250	10	Excellent	24	45	115	54
26	1964	6	150	29	Fair	25	53	67	8
	1965	5	150	26	Fair	25	45	66	42
	1966	5	125	15	Good	4	28	15	2
27	1964	11	325	25	Fair	53	61	246	64
	1965	10	300	33	Poor	58	43	179	62
	1966	10	250	21	Fair	44	52	105	33
Total Unit									
	1964	34	995	27	Fair	45	57	198	78
	1965	30	885	30	Fair	50	47	133	66
	1966	29	825	17	Good	32	43	93	43
Blackfoot Unit									
28	1964	18	445	38	Poor	60	43	149	45
	1965	19	453	41	Poor	58	38	107	76
	1966	18	465	42	Poor	40	44	90	54
29	1964	11	260	50	Poor	57	73	234	18
	1965	10	240	58	V. Poor	70	60	206	4
	1966	17	400	51	V. Poor	38	54	102	12
280	1964	4	100	19	Good	65	32	0	90
	1965	-	-	-	-	-	-	-	-
	1966	4	125	13	Good	23	20	35	46
281	1964	4	100	38	Poor	61	71	225	5
	1965	4	95	35	Poor	70	48	241	59
	1966	4	100	54	V. Poor	63	50	-	-
Total Unit									
	1964	38	950	41	Poor	59	54	162	39
	1965	33	788	47	Poor	64	48	241	59
	1966	43	1090	44	Poor	41	46	85	37

Table 5. Browse condition & utilization trend by hunting district (continued)

Hunting district	Year	No. Plots	No. Plants	% Class 3 & 6	Condition class	Leader Use %	Percent decadent	Fellet deer	groups/acre elk	moose
<u>Deer Lodge Unit</u>										
210	1964	10	175	32	Poor	32	52	165	12	0
	1965	7	205	26	Fair	26	30	126	3	0
	1966	10	245	28	Fair	18	39	112	10	3
212	1964	2	50	84	V. Poor	69	84	140	18	-
	1965	2	45	85	V. Poor	53	90	150	15	-
	1966	4	95	59	V. Poor	31	79	113	18	10
213	1964	3	55	44	Poor	40	63	43	7	
	1965	3	55	49	Poor	48	44	160	0	
	1966	3	65	50	Poor	9	74	65	0	
214	1964	1	25	44	Poor	8	64	15	0	
	1965	1	25	64	V. Poor	43	72	200	0	
	1966	1	25	92	V. Poor	41	96	-	-	
215	1964	3	75	79	V. Poor	73	68	127	13	
	1965	4	125	73	V. Poor	81	56	395	53	
	1966	4	100	75	V. Poor	66	83	138	0	
<u>Total Unit</u>										
	1964	19	380	50	Poor	46	60	131	12	
	1965	17	455	49	Poor	50	48	202	15	
	1966	22	530	48	Poor	29	62	112	9	

Table 6. Big game animals recorded at checking stations

Station	Year	Elk	Mule deer	W.T. deer	Black bear	Hunter trips
Darby	1963	395	219	3	22	3739
	1964	212	141	6	15	1966
	1965	307	172	5	3	2252
Bonner	1963	156	170	125	5	1784
	1964	148	93	163	27	2063
	1965	162	205	215	1	2349
Lincoln	1965	86	114	50	1	1086
St. Regis	1965	122	65	35	3	-
Rock Creek	1965	9	19	6	-	376

Table 7. Distribution of elk & deer harvest checked from upper Bitter Root drainage

Species	Year	W. Fork		Triangle		Total Dist. 25		E. Fork		Rye Creek		Total Dist. 27		Total for whole area	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Elk	1963	156	39	139	35	295	74	67	17	33	8	100	25	395	
	1964	75	36	69	33	144	69	45	22	17	8	62	31	206	
	1965	105	34	96	31	201	65	74	24	32	10	106	35	307	
Mule deer	1963	55	25	57	26	112	51	69	32	38	17	107	49	219	
	1964	29	21	12	9	41	30	59	42	39	28	98	70	139	
	1965	42	24	41	24	83	48	60	35	29	17	89	52	172	

Table 8. Sex-age composition of elk & deer harvest checked at Darby, 1965

Area	Species	Ad. Males		Ad. females		Young		Total	Ratio/100 ad. F.	
		No.	%	No.	%	No.	%		Ad.Males	Young
Dist. 25	Elk	85	42	70	35	46	23	201	121	66
	Mule deer	44	53	29	35	10	12	83	152	34
Dist. 27	Elk	46	43	40	38	20	19	106	115	50
	Mule deer	63	71	19	21	7	8	89	332	37
Total upper	Elk	131	43	110	36	66	21	307	119	60
Bitter Root	Mule deer	107	62	48	28	17	10	172	223	35

Table 9. Distribution of checked elk & deer harvest by time periods in the upper Bitter Root, 1965

Period	Species	Males	Females	Young	Total		Ratio/100 ad. females	
					No.	%	Ad. males	Young
9/25-9/26	Elk	46	34	16	96	31	135	47
9/27-10/10	Elk	17	11	6	34	11	155	55
10/11-10/24	Elk	16	13	7	36	12	123	54
10/25-11/7	Elk	9	11	9	29	9	82	82
11/8-11/21	Elk	21	16	15	52	17	131	94
11/22-11/28	Elk	22	25	13	60	20	88	52
Totals		131	110	66	307	100	119	60
9/25-26	M. Deer	16	15	3	34	20	107	20
9/27-10/10	M. Deer	8	9	3	20	12	89	33
10/11-10/24	M. Deer	9	3	0	12	7	30	0
10/25-11/7	M. Deer	23	1	3	27	16	2300	300
11/8-11/21	M. Deer	33	8	6	47	27	412	75
11/22-11/28	M. Deer	18	12	2	32	18	153	17
Totals		107	48	17	172	100	223	35

Table 10. Age composition by year classes of adult elk and deer checked at the Darby station, 1965

Species	Sex	1½		2½		3½		4½		5½		6½		7½		Total prime		Old		Total	Ylg/ 100 older	Old/ 100 other
		No.	%	No.	%	No.	No.	No.	No.	No.	No.	No.	No.	No.	%	No.	%					
Elk	Male	27	37	12	16	15	9	7	1	1					33	45	1	1.4	73	59	1.4	
	Female	14	33	8	19	6	4	2	0	3					15	35	6	13	43	48	16	
	Both	41	35	20	17	21	13	9	1	4					48	41	7	6	116	55	6.4	
Mule deer	Male	23	50	13	28	4	2	0	2	1					9	20	1	2	46	100	2.2	
	Female	5	36	6	43	1	1	0	0	0					2	14	1	7	14	56	7.7	
	Both	28	47	19	32	5	3	0	2	1					11	18	2	3	60	86	3.4	

Table 11. Distribution of elk and deer harvest checked at St. Regis station, 1965

Species	Dist. 20		Dist. 20.1		Dist. 22		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Elk	4	3	62	51	54	44	2	2	122	100
Mule deer	1	2	32	49	28	43	4	6	65	100
W.T. deer	7	20	21	60	6	17	1	3	35	100

Table 12. Time distribution of the 1965 elk and deer harvest checked at the St. Regis station

Period	Elk		Mule deer		W.T. deer	
	No.	%	No.	%	No.	%
Sept. 25-26	45	37	15	23	5	14
Sept. 27-Oct. 10	20	16	9	14	1	3
Oct. 11-24	15	12	7	11	5	14
Oct. 25-Nov. 7	6	5	11	17	8	23
Nov. 8-21	13	11	9	14	11	31
Unknown	1	1	0	0	0	0
	122	100	65	100	35	100

Table 13. Sex-age composition of the elk and deer harvest checked at the St. Regis station, 1965

Species	Ad. males		Ad. females		Young		Total	Ratio/100 ad. females	
	No.	%	No.	%	No.	%		Ad. males	Young
Elk	53	44	51	43	15	13	119	104	29
Mule deer	31	48	29	45	5	8	65	107	17
W.T. deer	14	40	13	37	8	23	35	108	62

Table 14. Age composition of adult deer and elk indicated by dentition

Species	Sex	Yearling		2½ year		Prime		Old		Total No.	Yrlg/100 older	Old/100 other
		No.	%	No.	%	No.	%	No.	%			
Elk	Male			Sample biased to yearlings								
	Female	4	18	2	9	14	64	2	9	22	22	10
Mule deer	Male			Sample biased to prime adults								
	Female			"	"	"	"	"	"			
W.T. deer	Male	3		2		2		1		8	60	14
	Female	2		1		2		1		6	50	20
	Both	5		3		4		2		14	55	17

Table 15. Distribution of male elk and deer by antler classes, St. Regis, 1965

Species	Spike		2 pt.		3 pt.		4 pt.		5 pt.		6 pt.		7+ pt.		Total	Yrlg/100 older*
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Elk	11		1		1		6		11		11		2		43	39
M. deer	1		5		1		13		1		1		1		23	35
W.T. deer	2		0		1		4		2		-		-		9	29

*Assuming that spikes and 2 points are yearlings (1½ years old)

Table 16. District Two deer harvest from questionnaire returns

Hunting District	Year	Total Harvest	No. Hunters	Hunting Success
20	1964	288	651	44
	1965	310	628	49
21	1964	370	778	48
	1965	532	1015	52
22	1964	481	1049	46
	1965	619	1189	52
23	1964	587	1421	41
	1965	612	1418	43
24	1964	181	626	29
	1965	309	768	40
25	1964	153	542	28
	1965	165	405	41
26 & 260	1964	129	376	34
	1965	280	557	50
27	1964	228	486	47
	1965	221	478	46
28	1964	908	2173	42
	1965	1029	2049	50
29 & 290	1964	962	1674	57
	1965	1081	1608	67
280	1964	110	203	54
	1965	128	259	49
281	1964	300	594	51
	1965	194	445	44
210	1964	350	711	49
	1965	277	624	44
211	1964	52	115	45
	1965	38	58	65
212	1964	251	515	49
	1965	172	449	38
213	1964	57	116	49
	1965	78	196	40
214	1964	53	143	37
	1965	75	262	29
215	1964	158	358	44
	1965	84	220	38
Total Dist. 2	1964	5618	12,458	45
	1965	6204	12,084	51

Table 17. Time of kill of 1965 deer harvest from questionnaire returns

Hunting District	Percent					Unknown
	Before Oct. 24	Oct. 24-31	Nov. 1-14	Nov. 15-28	After Nov. 28	
20	16	22	38	25	0	0
21	0	29	42	29	0	0
22	18	36	20	21	0	5
23	2	24	46	29	0	0
24	17	28	21	24	0	10
25	41	41	12	6	0	0
26	13	44	25	19	0	0
27	0	27	46	18	5	5
28	1	29	36	31	0	3
29	0	31	34	32	0	3
210	0	40	47	13	0	0
211	0	25	50	25	0	0
212	0	18	35	41	0	0
213	0	22	33	33	0	11
214	0	25	50	25	0	0
215	0	56	22	11	0	0
260	10	30	40	20	0	0
280	31	15	39	15	0	0
281	0	14	43	43	0	0
290	0	50	40	10	0	0
Total	6	30	35	27	1-	2

Table 18. Composition of 1965 deer harvest by species and antler class, from questionnaire returns

Hunting District	Antlered deer		Antlerless		Mule Deer		White-tails	
	No.	%	No.	%	No.	%	No.	%
20	119	38	192	62	113	38	188	62
21	269	51	263	49	104	20	407	80
22	234	38	377	62	302	49	317	51
23	367	60	245	40	255	42	357	58
24	191	62	118	38	220	71	90	29
25	93	56	72	44	133	81	32	19
26	98	62	61	38	150	94	9	6
27	153	69	68	31	179	85	33	15
28	599	59	422	41	347	34	683	66
29	598	62	393	38	730	74	253	26
210	193	70	84	30	214	77	63	23
211	17	46	20	54	38	100	0	-
212	107	62	65	38	163	100	0	-
213	69	88	9	12	78	100	0	-
214	66	35	49	65	75	100	0	-
215	67	80	17	20	84	100	0	-
260	112	93	9	7	32	26	89	74
280	76	59	52	41	81	64	46	36
281	130	67	64	33	110	57	84	43
290	81	90	9	10	43	48	46	52
Totals	3599	58	2567	42	3451	56	2698	44

Table 19. District Two elk harvest from questionnaire returns

Hunting District	Year	Total Harvest	No. Hunters	Hunting Success
20	1964	261	932	28
	1965	284	656	43
21	1964	102	590	17
	1965	47	502	9
22	1964	407	1604	25
	1965	347	1468	24
23	1964	286	1617	18
	1965	174	1202	15
24	1964	118	904	13
	1965	157	840	19
25	1964	257	1302	20
	1965	228	814	28
26	1964	53	361	15
	1965	62	448	14
27	1964	156	701	22
	1965	203	781	26
28	1964	440	2200	20
	1965	360	1669	22
29	1964	262	1306	20
	1965	174	1045	17
280	1964	116	441	26
	1965	95	300	32
281	1964	124	967	13
	1965	92	716	13
210	1964	136	691	20
	1965	151	581	26
211	1964	41	227	18
	1965	47	165	29
212	1964	127	641	20
	1965	177	691	26
213	1964	26	158	17
	1965	35	133	27
214	1964	44	186	24
	1965	18	127	14
215	1964	111	583	19
	1965	38	437	9
Total District 2	1964	3069	15,411	20
	1965	2690	12,575	21

Table 20. Time of kill of 1965 elk harvest from questionnaire returns

Hunting District	Percent					Unknown
	Before Oct. 24	Oct. 24-31	Nov. 1-14	Nov. 15-28	After Nov. 28	
20	-	-	-	-	0	-
21	0	40	20	20	0	20
22	38	24	18	21	0	0
23	0	41	35	24	0	0
24	53	20	13	13	0	0
25	61	13	22	4	0	0
26	0	50	33	17	0	0
27	-	20	15	55	0	10
28	0	19	19	50	0	11
29	-	56	22	0	0	22
210	0	21	21	50	0	7
211	0	40	20	40	0	0
212	0	11	26	53	0	11
213	0	75	0	25	0	0
214	0	50	50	0	0	0
215	0	0	100	0	0	0
280	44	22	11	22	0	0
281	0	0	30	70	0	0
Total	16	22	24	34	0	4

Table 21. Sex-age composition of the 1965 elk harvest from questionnaire returns

Hunting District	No. bulls	No. spikes	No. cows	No. calves	Total No.	Bulls*/100 cows	Spikes*/100 bulls	Calves*/100 cows
20	53**	18**	65**	-**	284	109	34	-
21	29	-	9	9	47	-	-	31
22	142	27	131	47	347	129	19	36
23	63	12	100	0	175	75	19	-
24	78	9	29	41	157	-	15	-
25	131	21	59	18	229	-	16	31
26	12	18	32	0	62	94	-	-
27	38	36	74	56	204	100	95	76
28	100	50	156	53	359	64	50	34
29	59	18	68	30	175	113	31	44
210	74	-	65	12	151	114	-	18
211	29	-	18	0	47	161	-	-
212	53	9	88	18	168	70	17	20
213	18	-	9	9	36	-	-	-
214	0	9	9	0	18	-	-	-
215	9	18	12	0	39	-	-	-
280	12	12	42	29	95	-	-	-
281	27	9	48	9	93	75	33	19
Total No.	927	263	1013	331	2681	117	28	35
Percent	36	10	40	14	100			

* Includes spikes

** Omitted from calf-cow ratio and percentages because of apparent sampling error

Table 22. District Two bear harvest from questionnaire returns

Hunting District	No. hunters	No. bears killed		Total	Hunter success
		Black	Grizzly		
20	162	29	0	29	18%
21	128	0	0	0	-
22	136	21	0	21	15
23	195	36	0	36	18
24	148	23	0	23	16
25	98	0	0	0	-
26	115	23	0	23	21
27	80	12	0	12	15
28	287	44	0	44	15
29	82	21	0	21	25
210	39	0	0	0	-
211	12	0	0	0	-
212	71	20	*	21	29
213	9	9	0	9	-
214	0	0	0	0	-
215	12	0	0	0	-
260	21	0	0	0	-
280	148	53	0	53	36
281	119	0	0	0	-
290	9	9	0	9	-
Totals	1869	-	*	300	16

*One unconfirmed report was received that a grizzly was killed.

Table 23. District Two harvest of moose, goats and bighorn sheep

Species	Hunting district	No. permits	No. hunters	Percent success	No. killed	No. males	No. fem.	No. ad.	No. Yng.	Unknown sex-age
Moose	23	10	10	60	6	1	4	5	0	1
	24	5	4	50	2	0	2	2	0	0
	25	15	14	43	6	2	4	6	0	0
	26	5	5	60	3	0	2	1	1	1
	27	20	20	75	15	7	7	11	3	1
	212	15	15	67	10	4	5	8	2	0
	214	5	5	100	5	2	3	5	0	0
	216	5	5	100	5	1	3	4	0	1
	217	10	9	33	3	1	1	2	0	1
	218	5	5	80	4	1	2	3	0	1
	219	15	15	33	5	4	0	4	0	1
	Total	110	107	58	62	26	36	55	6	1
Goats	24	100	84	41	34	21	12	-	-	1
	25	25	20	10	2	0	2	-	-	0
	27	20+	20	15	3	3	0	-	-	0
	212	10	10	30	3	2	1	-	-	0
	213	3	2	0	0	-	-	-	-	0
	222	45	36	69	25	12	13	-	-	0
	261	4	3	67	2	0	2	-	-	0
	280	15	12	0	0	-	-	-	-	0
	281	10	9	33	3	0	3	-	-	0
	Total	232+	185	40	72	38	33	-	-	1
Sheep	25	5	5	40	2	-	-	-	-	-
	220	5	5	60	3	-	-	-	-	-
	Total	10	10	50	5	-	-	-	-	-

Table 24. Big game harvest reported by licensed outfitters

Unit	No. Out- fitters	Hunters		Elk					Deer					Other			Tot. Kills	% Suc
		Res.	Non-res.	Bulls	Cows	Calves	Unk.	Tot.	Bucks	Does	Fawns	Unk.	Tot.	Moose	Goats	Bear		
Clark Fork	7	57	80	33	33	5	1	72	18	12	1	1	32			2	106	77
Blackfoot	7	27	77	7	10	3	0	20	13	-	-	4	17		3	5	45	43
Bitter Root	3	-	26	4	6	1	0	11	2	-	-	-	2				13	50
Deer Lodge	2	-	12	3	1	0	0	4	0	1	-	3	4				8	67
Dist. Total																		
1965	19	84	195	47	50	9	1	107	29	13	1	8	55	0	3	7	172	62
1964	-	63	223	46	54	15	0	115	37	14	2	1	54	1	8	5	183	64
1963	-	68	229	60	64	11	2	137	32	11	0	10	53	3	8	5	206	69

Table 25. Deer herd sex-age composition from field classified counts 1965-66

Hunting District	Bucks	Does	Uncl. adults	Total adults	Fawns	Bucks/100 does	Fawns/100 adults
<u>White-tailed deer</u>							
20	2	1	99	102	35	-	34
20.1	-	1	4	5	3	-	-
21	-	-	44	44	26	-	59
22	12	13	38	63	23	-	37
23	7	7	64	78	28	-	36
Total							
Clark Fork	21	22	249	292	115	-	39
28	-	-	173	173	97	-	56
29	-	-	62	62	25	-	40
281	-	-	142	142	49	-	49
Total							
Blackfoot			377	377	192	-	51
Total white-tails	21	22	626	669	307	-	46
<u>Mule deer</u>							
20	-	-	35	35	13	-	37
20.1	-	-	13	13	7	-	54
22	1	1	44	46	11	-	24
23	1	8	21	30	12	-	40
Total							
Clark Fork	2	9	113	124	43	-	35
24	5	20	2	37	17	25	63
25	-	3	2	5	4	-	-
26	15	53	8	76	38	28	50
27	15	45	72	132	42	33	32
Total							
Bitter Root	35	121	84	240	101	29	42
28	-	-	128	128	54	-	42
29	-	-	190	190	79	-	42
281	-	-	54	54	31	-	57
Total							
Blackfoot	-	-	372	372	164	-	44
210	7	10	62	77	40	70	52
Total							
Deer Lodge	7	10	62	77	40	-	52
Total							
mule deer	44	140	631	815	348	31	43

Table 26. Elk herd sex-age composition from field-classified counts 1965-66

Hunting District	Adult bulls	Spike bulls	Cows	Calves	Bulls /100 cows	Spikes/ 100 older bulls	Calves /100 cows	Sample size
20	5	4	16	5	56	-	31	30
20a1	7	5	45	17	27	71	38	74
22	4	5	96	29	9	-	31	134
23	<u>23</u>	<u>19</u>	<u>200</u>	<u>61</u>	<u>21</u>	<u>83</u>	<u>31</u>	<u>303</u>
Total								
Clark Fork	39	33	357	112	20	85	31	541
24	2	1	44	17	-	-	39	64
25	-	2	35	19	-	-	54	56
26	7	14	158	48	13	200	30	227
27	<u>32</u>	<u>19</u>	<u>166</u>	<u>60</u>	<u>31</u>	<u>59</u>	<u>36</u>	<u>277</u>
Total								
Bitter Root	41	36	403	144	19	88	36	624
28	13	16	162	72	18	123	44	263
29	14	12	52	30	50	86	58	108
281	<u>10</u>	<u>14</u>	<u>156</u>	<u>67</u>	<u>15</u>	<u>140</u>	<u>43</u>	<u>247</u>
Total								
Blackfoot	37	42	370	169	21	113	46	618
210	20	4	43	13	56	20	30	80
Total elk	137	115	1173	438	21	84	37	1863

Table 27. Aerial elk trend counts

Area	No. elk observed	
	1964-65	1965-66
<u>Bitterroot Unit - east side</u>		
Miller Cr.-Eightmile Cr.	65	64
Eightmile-Burnt Fork	135	145
Burnt Fork-Willow Cr.	73	67
Willow Cr.-Skalkaho Cr.	360	362
Sub-Total*	633	638
Skalkaho Cr.-Rye Cr.	372	354
French Basin	114	137
East Fork-north side	158	100
East Fork-south side	252	248
Sula Pt.-Doran Point	100	107
Sub-total (Dist. 27)	996	946
Total east side	1629	1584
<u>Bitterroot Unit - west side</u>		
Mormon Cr.-Carlton Cr.	64	42
Carlton-Mill Cr.	87	167
Mill Cr.-Tin Cup Cr.	132	161
Sub-total**	283	370
Tin Cup-Trapper Cr.	119	74
Trapper-Beaver Cr.	34	139
So. of Hughes Cr.	-	14
Hughes-Piquette Cr.	178	106
Piquette-Warm Springs Cr.	114	79
Warm Springs-Camp Cr.	67	116
Sub-total (Dist. 25)	512	528
Total west side	795	898
Total Bitterroot	2424	2482

Table 28. Bighorn Sheep counts in Rock Creek area

Year	Rams	Ewes	Total adults	Lambs	Uncl. sheep	Total sheep	Rams/ 100 ewes	Lambs/ 100 ewes	Lambs/ 100 ads.
1948	-	-	-	-	-	17 est.	-	-	-
1954	16	29	45	11	-	56	55	38	24
1956	11	28	39	12	-	51	72	-	31
1959-60	-	-	-	-	-	75	-	-	-
1960-61	-	-	-	-	-	130	48	51	34
1961-62	-	38	-	23	-	-	-	61	-
1964-65	12	20	32	7	64	103	60	35	22
1965-66	9	29	38	8	-	46	31	28	21

Table 29. Tag returns, native elk & mule deer, and transplanted Yellowstone elk

Tag Nos.	Release Location			Recovery Data		
	Sex	Age	Date	Location	Date	Location
<u>Native elk & mule deer - Bitterroot</u>						
H1130-31	M	calf	2/5/65	Pasture Draw	10/25/65	Sec. 4, T2, R19 Rye Creek
H1132-33	F	Ad.	2/5/65	Pasture Draw	10/25/65	SW $\frac{1}{4}$ Sec. 20, T2-R19 French Basin (2 $\frac{1}{2}$ Road)
H1177-78	M	Ad.	2/15/65	Barley Ridge (Wetzsteon Ranch)	10/25/65	SE $\frac{1}{4}$ Sec. 26 T1-R19 Wallace-Diggins
H1319-20	M	1 $\frac{1}{2}$	1/15/65	Pasture Draw	10/24/65	Head Orphan Creek
H1146-47	F	Ad	2/4/65	S. Gird Creek	11/21/65	Willow Creek
H1329-30	M	calf	1/17/65	Pasture Draw	11/28/65	Bertie Lord Cr.
H1365-66	F	Ad	1/27/65	Pasture Draw	10/24/65	Orphan Creek
<u>Mule Deer</u>						
H1378-79	M	Ad	1/28/65	B-R Game Range	11/27/65	Bitterroot Game Range East of trap
<u>Transplanted Yellowstone Elk</u>						
S2703	F	Ad	2/13/64	B-C Game Range	11/13/65	East Fork Cottonwood Cr.
S2704	F	Ad	2/13/64	B -C Game Range	10/25/65	Boyd Mountain
-						
White neck-band	F	Ad	2/13/64	B-C Game Range	10/25/65	Keep Cool-Landers Fork ridge
S2716	F	calf	2/13/64	B-C Game Range	10/25/65	Boyd Mountain
S1911	-	-	2/7/63	Prison Ranch	11/1/65	Robinson Gulch Prison Ranch
S1922	-	-	2/7/63	Prison Ranch	Fall/65	Boulder Cr., east of Maxville
S1925	-	-	2/7/63	Prison Ranch	Fall/65	Upper Finley Basin
S1931	F	Ad	2/7/63	Prison Ranch	10/24/65	Gold Hill
S1940	F	-	2/7/63	Prison Ranch	11/1/65	Elk Ridge, Flint Cr. Range
S1720	M	Ad	1/9/64	Olson Gulch	10/26/65	Shower Lake-Gold Bar Basin Upper Warm Springs Cr.
Red collar	-	-	1/9/64	Olson Gulch	11/19/65	Warm Springs Cr. W. of Anaconda
S2243	M	-	2/11/65	Olson Gulch	Fall/65	Lower Seymour Lake Bighole
L.S.B.						
81AC07584	-	-	2/17/65	Olson Gulch	10/31/65	Sullivan Cr., Bighole
S1628	F	-	1/27/63	Brock-Warm Springs	10/24/65	Willow Cr. near Gold Hill Dist. 212

Table 30. Elk trapped and tagged at five trap sites in the Bitterroot Unit, January-March, 1966

Trap site	No. elk				Tag numbers
	Bulls	Cows	Calves	Total	
Wetzsteon Ranch (Barley Ridge) Neck-band color: blue on white	2	8	3	13	H1190-91 to H1194-95 5607A-08A to 5611A-12A 5672A-73A H1333-34 H1114-15 - retrap H1301-02 - " H1309-10 - " H1351-52 - " H2291-92 - "
McCoy Gulch Neck-band color: white	4	19	2	25	H1196-97 to H1198-99 5601A-02A to 5605A-06A 5613A-14A to 5623A-24A 5626A-27A 5629A-30A 5639A-40A to 5643A-44A 5647A-48A to 5649A-50A 5652A-53A to 5654A-55A 5662A-63A to 5670A-71A
Pasture Draw Neck band color: black on green	0	3	1	4	H1186-87 to H1188-89 H1369-70 - Retrap H1315-16 - "
Bitterroot Game Range Neck-band color: black on white	0	1	1	2	5631A-32A to 5633A-34A
Bitterroot Stock Farm (So. Gird) Neck-band color: green	0	2	1	3	5635A-36A to 5637A-38A H2228-29
Totals	6	33	8	47	

Table 31. Yellowstone elk released at Warm Spring Creek, Garnet Range, February, 1966

Bulls	No. elk			Tag numbers
	Cows	Calves	Total	
4	18	8	30	S4601-02 to S4633-34 S4961-62 to S4967-68 S4971-72 to S4987-88



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A-1
1967

STATE DOCUMENTS

JOB COMPLETION REPORT
RESEARCH PROJECT SEGMENT

State of Montana Name Wildlife Investigations, District 2
Project No. W-72-R-12 Title Big Game Surveys and Investigations
District-Wide
Job No. A-1
Period Covered July 1, 1966 to June 30, 1967

Abstract:

Grass condition transects were examined at 15 elk winter range sites in the Blackfoot and Deer Lodge management units during the summer and fall of 1966. Key grass species were in a satisfactory condition on seven sites, and were unsatisfactory on eight. Of 13 transects examined in 1964 and 1966, six showed a downward trend, one improved, and six remained the same.

Grass utilization determinations were made on 25 elk winter range sites in the Clark Fork, Blackfoot, and Deer Lodge units. Utilization exceeded 50 percent at nine transects sites. Eight of these were in the Deer Lodge Unit.

Placement of salt blocks on lightly used portions of the bunchgrass range on the Blackfoot-Clearwater Game Range failed to improve distribution of elk use.

Three grass transects on the State Prison Ranch indicated an average utilization of 57 percent, most of which was by cattle.

A total of 167 browse transects was examined during the spring of 1967 in 18 hunting districts. Browse condition was unsatisfactory in 12 hunting units, and satisfactory in six. Between 1965 and 1967 browse condition improved in 11 hunting districts, remained the same in 6, and deteriorated in one. Browse leader use frequency exceeded 50 percent in six hunting districts mostly in the Blackfoot and Deer Lodge units. Browse utilization in 1967 was greater in nine hunting districts than in 1966. Utilization remained the same in four districts and decreased in five.

Checking stations were operated chiefly at St. Regis, Darby and Bonner. More elk were checked at all these stations than during each of the previous two years. Fewer deer were checked at St. Regis and Bonner, but more at Darby, than in 1965. Distribution of the checked harvest by areas, time periods, and sex-age classes was tabulated.

According to questionnaire returns hunters took 6602 deer, 3820 elk, 604 bear, 81 moose, 169 goats, and five bighorn sheep in District Two areas in 1966. These figures indicated greater harvests of elk, deer, bear, moose, and goats than in 1965, and the same number of sheep. Harvest data were tabulated for each hunting district.

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Reports of licensed outfitters were tabulated. These showed 410 hunters killed 206 elk, 94 deer, 5 goats, and 6 bear. The hunting success for these hunters (total kills) was 75 percent in 1966 compared to 62 percent in 1965 and 64 percent in 1964.

Winter herd classification of deer yielded a ratio of 48 fawns per 100 adults for whitetails, and 51 for mule deer. A ratio of 36 calves per 100 cows was observed for elk herds in the Clark Fork, Blackfoot, and Deer Lodge Units.

The annual cooperative count of bighorn sheep in the Rock Creek area yielded 47 sheep compared to 46 in the preceding winter. Additional surveys indicated a total of 62 sheep in this herd, a reduction of at least 50 percent since 1960.

Few aerial surveys of game population were made during the winter because of mild weather conditions on winter ranges. Mild weather also hampered trapping and tagging; only 15 elk were trapped and marked in the Bitterroot traps.

Forty-four jaws and 13 female genital tracts of moose were collected and submitted by moose hunters. Age distribution and ovulation rate were determined.

Six cases of game damage, chiefly elk damage to haystacks, were recorded during the winter.

Objectives:

To determine quantitative data for the management of big game species in District Two. Information concerning range conditions, population conditions, and harvest will be collected in a systematic manner. The data will be tabulated and presented in reports for use by the Commission in setting big game seasons.

Techniques Used:

Range surveys were conducted according to standardized procedures described in the Departments Range Survey Guide. Joint readings of range transects were made with the Forest Service in some areas. General range inspections and appraisal of range conditions were performed in areas not sampled by study plots.

Classified counts of deer and elk were made during the winter and early spring to determine the production and survival of young. Classification of elk was performed mainly by ground surveys with some aerial observation. Aerial distribution surveys of elk were made in some areas.

Checking stations were operated to collect data on harvest trend, sex-age composition and weights.

Moose jaws and reproductive tracts were solicited from moose permit holders.

Estimates of the total harvest of big game species were obtained from questionnaire returns. Additional harvest data were taken from guides and outfitters reports.

Several proposed sites for Yellowstone elk releases were inspected and inspection reports were submitted.

Game damage complaints were tabulated.

Elk were trapped and marked at five trap sites in the Bitterroot Unit. Relocations of tagged elk were recorded and tabulated.

Findings:

RANGE

Grassland Condition

Grass condition transects were examined at 15 sites in the Elackfoot and Deer Lodge management units during the summer and fall of 1966 (Table 1). All locations were grazed by elk in winter and spring and seven were also grazed by livestock, mostly in summer and fall.

The upper transect (No. 245) in Elk Basin on the Bitterroot Game Range has remained in poor condition for the past three years. Density of rough fescue, the key species has declined somewhat during this period. The lower transect (No. 274) has been in excellent or good condition with an apparent downward trend. This may have been due to variation in observers. The density of rough fescue on this transect has increased during the three-year period. The lower transect has received very little use for several years, while the upper transect has been heavily used. A new transect established in the summer of 1966 on the steep west-facing slope east of Elk Basin showed rough fescue in very poor condition, Idaho fescue in good condition and bluebunch wheatgrass in fair condition. Idaho fescue was the most abundant of the three species (51%). Over-all condition of the three species was fair.

The two transects at the head of Alice Creek (No. 25 & 26) were in very poor condition in 1966, and had apparently deteriorated. A new transect on Markham Mtn. showed rough fescue in poor condition, but Idaho fescue and blue bunch wheatgrass in good condition. Over-all rating for the three species was good.

The Hog-back ridge in Rock Creek has shown a steady downward trend for three years. Grass condition for the three bunch-grass species has deteriorated from good in 1964 to poor in 1966. However, density increased slightly during this period.

Rough fescue on the lower Lone Pine Ridge transect remained in very poor condition during the three years.

Three transects were on the State Prison Ranch. Two of these with rough fescue as a key species rated poor and very poor and their condition remained about the same between 1964 and 1966. One transect with Idaho fescue remained in fair condition.

Rough fescue on the Modesty Ridge transect deteriorated from good to very poor from 1964 to 1966, while density and leaf height both declined. This was a result of heavy livestock use during the past two years. Two transects further west, in the Stucky Ridge area remained in excellent condition.

Grass Utilization:

Grass utilization was determined by grazed plant counts on 25 winter range sites during the spring of 1967 (Table 2).

On Petty Pasture (Hunting District 23) utilization was only 18 percent in 1967, compared to 24 in 1964. Pellet group counts also reflected lighter use of the area by deer and elk.

The upper Elk Basin transect on the Blackfoot-Clearwater Game Range (Hunting District 28.1) has shown utilization between 40 and 50 percent during the three-year period. The lower transect has shown utilization between 1 and 10 percent. In an effort to obtain better distribution of use, salt blocks were placed in the lightly used area near the lower transect, during late fall of 1965 and 1966. No increase in utilization occurred on the transect, even though the salting sites were almost denuded, and the vegetation within a 50 foot radius of the salt blocks was heavily trampled by elk. Salting did not effect better distribution of elk. It merely created some sore spots on the range. The new transect on the west slope of Sperry Mountain showed moderate utilization (41%) of rough fescue which was in very poor condition from heavy use in previous years.

Markham Mountain and Karshaw Mountain (District 281) showed moderate to heavy utilization by elk (41 and 55 percent, respectively). The two transects at the head of Alice Creek (Lewis and Clark Pass and Telephone Ridge) showed somewhat lighter use than in 1966. A new transect on Silver King Mountain showed 42 percent use.

Baldy Mountain, in Hunting District 29.1, had only five percent utilization, which is the lightest use during the past three years.

In District 210 the mid-hill on Spring Creek and Hogback Ridge showed utilization between 40 and 50 percent, while other transects showed light to moderate use.

Lone Pine Ridge and the Potato Lakes area in District 211 both showed excessive use (70-80 percent).

In District 212, Six-mile hill north of Philipsburg was heavily used (72%) and Fred Burr Creek was moderately used (47%). Both these transects are on the west slope of the Flint Creek Range. The three Prison Ranch transects on the east slope of the Flint Creek Range all showed utilization between 50 and 60 percent. However, most of this use was by cattle (Table 3). Two transects were checked on Modesty Ridge north of Anaconda. Use on the

old established transect near the enclosure was 42 percent, mostly by cattle and horses. A new transect on the ridge north of the enclosure was 50 percent utilized by elk and cattle.

Browse Surveys

Browse condition and utilization were determined on 167 transect sites during the spring of 1967. A summary of data for individual transects is shown in Table 4. Data by hunting districts with comparison for two previous years are shown in Table 5.

Browse utilization during the mild 1966-67 winter was somewhat greater than during the previous winter. The late, cold spring weather in 1967 probably kept deer and elk on winter ranges longer than usual. District-wide, the percent frequency of leader use averaged 44 percent in 1967, compared to 38 percent in 1966, and 54 percent in 1965.

The browse on 63 transects was found to be excessively used in the spring of 1967. Most of these transects are on chronically over-used range. Their locations are as follows:

<u>District</u>	<u>Location</u>	<u>No. of transects</u>	<u>% Class 3 & 6</u>	<u>% use</u>	<u>Principal class of animals</u>
20	Soudan-Freezeout Gulch	4	71	85	deer
	Keystone-Fourmile Cr.	2	62	69	deer, elk
20.1	Boyd Mountain	2	62	67	deer
	Burnt Flats Creek	1	68	76	elk
21	Butler Creek	2	70	69	elk, deer, cows
	Ninemile Hill	1	92	77	deer
22	Trout Creek burn	1	48	63	deer, elk
	Dry Creek-Marble	1	60	37	deer
23	Wall Creek	1	12	87	deer
	Upper W. Fk. Butte Cr.	2	33	67	deer
24	Sweeney Creek	1	25	64	deer, elk
	Larry Creek	1	16	66	deer, elk
	Lost Horse Creek	1	16	70	deer, elk
25	Haley Chute	1	84	71	deer, elk
27	Jennings-Kelly Hill	2	50	86	deer, elk
	Spring Gulch (Sula Peak)	1	60	84	deer
	Spring Gulch (Rye Creek)	1	60	69	elk
28	O'Keefe Creek	1	30	86	deer
	Rattlesnake Creek	1	59	56	deer, cows
	Belmont	1	36	63	deer
	Camp Nine	2	44	82	deer
	B-C Game Range	4	44	61	deer, elk
	Salmon Lake Hills	1	72	90	deer
	Placid Lake	1	12	76	deer, elk
	Ovando Mountain	1	80	71	elk
	McCabe Creek	1	90	56	deer, elk
29	Upper Nevada Creek	1	64	52	deer
	Mulkey Gulch	1	100	89	deer
	Beavertail Hill	1	52	47	deer
	Nimrod	1	64	82	deer
	Bear Creek	1	20	85	deer

<u>District</u>	<u>Location</u>	<u>No. of transects</u>	<u>% Class 3 & 6</u>	<u>% use</u>	<u>Principal class of animals</u>
29	Rattler Gulch	1	96	89	deer
	Hoover Creek	1	88	56	deer
	Warm Springs Creek	1	96	77	deer
	Poorman Creek	3	30	61	deer
	Fish Creek Ridge	1	80	69	deer, elk
281	Mineral Mountain	1	28	76	deer
	Lincoln Canyon	3	56	76	deer
210	Welcome Cr.-Gratton Gulch	1	64	50	deer
	Picket Gulch	1	32	68	deer
	Mallard Cr.-East Fork Ridge		74*	69*	deer
212	Boulder Creek	1	100	90	deer
	Racetrack Creek	1	50	85	deer, elk
213	Foster Cr.-Lost Creek	3	43	68	deer
214	East Fork Reservoir	1	64	47	deer
215	Little Blackfoot	2	86	84	deer
	Baggs Creek	1	56	88	deer
	Dry Cottonwood	2	10	66	deer
	Total	63			

*Average of 25 rabbitbrush and 25 sagebrush plants. Deer had also used horsebrush (Tetradymia) heavily at this site.

The average browse condition in District Two areas was still poor. However there was some improvement during the project year. District-wide, 33 percent of the browse plants were in a heavily-hedged condition in 1967, compared to 37 percent in 1966, and 44 percent in 1965.

By management units, browse condition was "poor" in the Clark Fork, "good" in the Bitterroot, "poor" in the Blackfoot, and "very poor" in the Deer Lodge. In the Clark Fork Unit, all hunting districts rated "poor" in browse condition except District 23 which was "good." In the Bitterroot Unit, Districts 24 and 26 were "good," while 25 and 27 were "fair." In the Blackfoot Unit, all districts were "poor" except 280 (mostly summer range), which was "fair." The Deer Lodge Unit was in poorest condition of the four management units. Districts 210 and 213 rated "poor" while districts 212, 214 and 215 were "very poor." District 211 probably should be included in the "very poor" category. There are no transects in this district, since palatable browse is scarce, and winter range is chiefly grassland used by elk. Observations in the vicinity of grassland transects show heavy use of Ribes and russet buffaloberry. Many of these plants are dead or dying as a result of chronic over-use.

HARVEST SURVEYS

Checking Stations

Full-time stations were operated at St. Regis, Darby and Bonner. An auxiliary station was operated on weekends on the St. Regis "cut-off" road to obtain an estimate of game being taken out of the area via that route. Numbers of hunter trips and game checked at each station are shown in Table 6.

At the St. Regis station, totals of 153 elk, 45 mule deer, 35 white-tailed deer, and 4 bear for 1657 hunter trips were recorded. These figures include 39 elk, 17 mule deer, 14 white-tailed deer and one bear checked on the "cut-off" road.

At Darby, 398 elk, 253 mule deer, 3 white-tailed deer, and 9 bear, taken during 2117 hunter trips were checked. More elk, mule deer and bear were checked in 1966 than in 1965, even though hunter trips declined slightly.

At Bonner, 181 elk, 175 mule deer, 139 white-tailed deer, 6 black bears and 2 grizzly bears were taken during 1668 hunter trips. The elk and bear kill increased while the deer kill declined from the previous year. The number of hunter trips declined considerably.

Distribution of the elk and deer harvest checked at St. Regis is shown in Table 7. Most of the animals were taken in Districts 20.1 and 22. The elk harvest in District 20.1 was governed by a quota of 100 elk checked at the St. Regis and cut-off stations. This quota was attained and the season ended on December 4, 1966. Thirty-one elk checked on the cut-off road were taken from District 20.1.

The distribution of the elk harvest checked at St. Regis by time periods is shown in Table 8. Twenty-two percent of the elk harvest was taken on the opening week-end and 46 percent was taken during the early season (Sept. 24-Oct. 23). Forty percent was taken during the regular season (Oct. 24-Nov. 27), and 14 percent during the post-season extension (Nov. 28-Dec. 4). Most of the deer harvest was made during the period Nov. 7-27.

Table 9 shows the sex-age composition of the elk and deer harvest at St. Regis. The elk harvest consisted of 44 percent bulls, 43 percent cows and 13 percent calves. The adult sex ratio was 102 bulls per 100 cows, and production ratio was 30 calves per 100 cows. The composition of the mule deer checked was 62 percent bucks, 31 percent does, and 7 percent fawns. White-tails consisted of 60 percent bucks, 28 percent does and 12 percent fawns.

Table 10 shows variations in sex and age ratios of harvested elk as the season progressed. During the early season considerably more bulls than cows were taken, while during the general season and extended period the reverse was true. The kill of calves was greater after November 7 than during the earlier periods.

Adult animals were aged by dentition whenever possible. The results of these examinations are shown in Table 11. Disregarding calves, the elk harvest consisted of 22 percent yearlings, nine percent $2\frac{1}{2}$ year-olds, 67 percent prime and 3 percent old. There were 28 yearlings per 100 older elk, and three old per 100 other adults. These results indicate that although there are not a high percentage of elk in the old-aged class, neither is the herd highly productive. Relatively low productivity is indicated also by the antler class distribution in Table 12.

Adult mule deer checked consisted of 22 percent yearlings, 70 percent $2\frac{1}{2}$ and prime, and 7 percent old. There are 29 yearlings per 100 older and 8 old per 100 other adults.

Adult whitetails checked at St. Regis consisted of 39% yearlings, 21% $2\frac{1}{2}$ and prime, and no old animals. There were 39 yearlings per 100 older animals. Antler point classifications for deer were too few to show a reliable distribution.

Table 13 shows the distribution by areas of elk and deer checked at the Bonner station. Twenty-five percent of the elk were killed on the B-C Game Range, 45 percent in the remainder of District 28, 25 percent in District 29, and two percent each in districts 280 and 281. Few deer were killed on the Game Range. Most of the deer harvest was made in the remainder of District 28, and in District 29.

Distribution of the elk harvest, checked at the Bonner station by time periods, is shown in Table 14. Thirty-six percent was killed on opening day. Kill by weekly periods, thereafter, varied from 8 to 17 percent of the total harvest.

Table 15 shows distribution of the mule deer harvest by time periods. The greatest kill (23%) was during the week Nov. 7-13. Fourteen percent was killed during the opening day, and 20 percent during the last week of the season. Hunters took nearly twice as many bucks as does during the season (182 bucks per 100 does). The fawn-doe ratio was 36 fawns per 100 does.

The distribution of the whitetail harvest by time periods is shown in Table 16. The greatest kill (28%) occurred during the last week of the season (Nov. 21-27). The opening day kill was 26 percent of the season harvest. The sex ratio of the kill was 165 bucks per 100 does, and the fawn-doe ratio was 58 fawns per 100 does.

The age composition of adult elk and deer, checked by dentition at the Bonner station, is shown in Table 17. Adult elk consisted of 24 percent yearlings, 17 percent $2\frac{1}{2}$, 49 percent prime, and 7% old. There were 31 yearlings per 100 older, and 8 old per 100 other adults.

Adult mule deer age composition was 32 percent yearlings, 20 percent $2\frac{1}{2}$, and 48 percent prime. No old animals were checked. There were 46 yearlings per 100 older deer.

Adult white-tail age composition was 37 percent yearlings, 19 percent $2\frac{1}{2}$, 44 percent prime, and no old animals. There were 58 yearlings per 100 older deer.

Questionnaire Returns

The District Two 1966 big game harvest from questionnaire returns consisted of 6602 deer, 3820 elk, 604 bear, 81 moose, 169 goats, and five bighorn sheep. Harvests for all species except sheep were greater than in 1965. The sheep harvest remained the same.

Deer Harvest

Deer harvest questionnaire data by hunting districts are shown in Table 18. The total number of deer hunters in 1966 was 12,663, which is about 400 more than in 1965.

The harvest of 6602 deer represents a hunting success of 52 percent, approximately the same as in 1965. Hunting district 28, with a harvest of 1094 deer, was the top deer area.

Sex composition of the deer harvest was 43 percent antlerless, and 57 percent antlered deer. The species composition was 39 percent whitetail and 61 percent mule deer.

Distribution of the deer harvest by time periods is shown in Table 19. District-wide, 9 percent of the harvest occurred during the early season, 37 percent during the period Oct. 23-Nov. 4, 34 percent during Nov. 5-18 and 19 percent Nov. 19-27. Areas with early seasons sustained appreciable deer harvests before the opening of the general season. In districts 20.1, 22, 24, 25, and 280, the deer kill during the early season comprised 26, 17, 23, 55, and 55 percent, respectively of the total harvest.

Elk Harvest

The elk harvest, from questionnaire returns is shown in Table 20. The total number of elk hunters in District Two in 1966 was 14,663, approximately 2,000 more than in 1965. The district-wide harvest was 3820 elk, 1130 more than in 1965. Hunting success was 26 percent, compared to 21 percent in 1965. Hunting districts 20.1, 22 and 25 yielded the greatest harvests with approximately 500 elk from each area. District-wide, the sex ratio of the harvest was 106 bulls per 100 cows. The proportion of yearling bulls was 29 yearlings (spikes) per 100 older bulls. The calf-cow ratio was 33 calves per 100 cows.

Distribution of elk harvest by time periods is shown in Table 21. Twenty-six percent of the elk harvest was made during the early season (Sept. 24-Oct. 22). Five of the 21 elk hunting districts had early seasons. Early kill in these districts ranged from 35 to 80 percent of the total harvest in each district.

Bear Harvest

The 1966 bear harvest was the highest of the three-year period. A total of 604 bears was killed by 2350 hunters, for a hunting success of 26 percent. Areas having the greatest bear harvest (between 50 and 100) were Districts 22, 23, 24, 25, 26, 27, 28, and 210 (Table 22).

The harvest of moose, mountain goats and bighorn sheep is shown in Table 23. The moose harvest was 81, taken by 113 hunters, for a success ratio of 72 percent. The goat harvest was 169, taken by 400 hunters, for a success ratio of 42 percent. Five bighorn sheep were taken by 10 hunters for a 50 percent success ratio.

Reports from licenses outfitters indicated that they had a relatively good season in 1966 (Table 24). Thirty-three outfitters reported that a total of 308 kills. Their total success ratio was 75 percent, compared to 62 percent in 1965 and 64 percent in 1964.

MORTALITY SURVEYS

Deer Winter Loss

The annual count of dead deer on the Clearwater study area was made on April 24 in 1967. The remains of 19 deer, one elk and one bear were found on the 480 acre area. This represented 25 dead deer per square mile. All identifiable remains were white-tailed deer. Of 14 deer which could be classified, 29 percent were bucks, 21 percent does, and 50 percent fawns. The bucks consisted of one yearling and 3 prime. Two of the does were in the old-age class and one was prime.

Deer losses per square mile each year on this area since dead deer counts were begun are as follows:

1956 - 90	1962 - 39
1957 - 75	1963 - 6
1958 - 39	1964 - 44
1959 - 33	1965 - 67
1960 - 18	1966 - 19
1961 - 8	1967 - 25

POPULATION SURVEYS

The results of herd composition counts of live deer are shown in Table 25. The age ratio of 383 white-tailed deer was 48 fawns per 100 adults. An age ratio of 51 fawns per 100 adults was observed in a total sample of 1237 mule deer. Mule deer appeared to be more productive in the Deer Lodge Unit (58 fawns per 100 adults) than in the Clark Fork or Blackfoot Units. In a sample of 658 elk, mostly from the Blackfoot Unit, there were 36 calves and 18 bulls per 100 cows.

Production data for elk and deer in the Bitterroot Unit are shown in the A-2 report.

Aerial Surveys

Aerial trend counts of elk were not made during the 1966-67 winter owing to the mild winter and scattered distribution of game. Two reconnaissance flights were made in the Rock Creek drainage in the spring. The numbers and locations of elk seen are as follows:

<u>Date</u>	<u>Location</u>	<u>No. elk</u>
April 4, 1967	Spring Creek	47
	Little Hogback	14
	South of Big Hogback	11
	Capron Creek	23
	Stony Creek	22
	West Fork Buttes	15 (Believed incomplete)
May 5, 1967	Lone Pine Ridge	Elk in timber, no count
	Middle Fork-Meadow Cr.	
	(Potato Lakes area)	103
	Trout Creek	40

Several flights were also made in the Bitterroot Unit. Results of these are shown in the A-2 report.

Bighorn Sheep Surveys

Bighorn sheep on the Rock Creek range were counted and classified during a drive census using University students. A total of 47 sheep was tallied during the census, compared with 46 in 1966. Subsequent surveys by Berwick and Aderhold found 15 additional sheep, making a total of 62 known population. This is approximately 50 percent of the known population in 1960-61. Classified counts during the 1967 drive census indicated 12 adult rams, 27 ewes and yearling rams and 6 lambs.

Moose Surveys

Moose jaws and female reproductive tracts were solicited from moose hunting permit holders. These were submitted to Dave Stevens for analysis. Sex and age composition data are shown in Tables 28 and 29. By age classes, 5 percent were calves, 22 percent yearlings, 39 percent 2-4 years, 17 percent 5-7 years, and 17 percent 8+ years. Fifty-one percent were males and 49 percent females.

Reproductive data from 12 female genital tracts are shown in Table 30. Seventy percent of cows two or more years old were ovulating. No yearlings were ovulating, which reduced the incidence in all cows to 58 percent. Embryonic tissue, indicating pregnancy, was identified in 30 percent of cows two or more years old. However this figure is minimal, since some reproductive tracts were collected too early in the fall to have developed embryonic tissue. One of these gravid uteri contained twins.

MOVEMENTS AND TRANSPLANTS

Eight tag returns of native Bitterroot elk, all trapped, tagged and released at the trap sites were received during and following the 1966 hunting season (Table 31). Two of these elk were trapped and tagged in 1962, one in 1964, three in 1965 and one in 1966. Locations of recoveries will be plotted and combined with previous information to plot elk movements in the area.

Three tag returns of native Blackfoot elk were also received. These had all been trapped and tagged on the Blackfoot-Clearwater Game Range in 1956 and 1958. Two were shot on the Game Range in late October and one in late November on Chamberlain Creek in the Garnet Range.

Sixteen tag returns were received from Yellowstone elk transplanted into District Two areas. Two from the 1964 transplant on the B-C Game Range had moved in opposite directions. One was taken from Arrastra Creek to the east, and one from the Rattlesnake-Grant Creek area to the west of the Game Range.

One transplanted on the B-C Game Range in January, 1967 was killed by traffic on Highway 209, north of the Clearwater junction.

Seven returns were received from elk transplanted on Warm Springs Creek, north of Garrison, in February 1966. Most returns were taken from the Garnet range within 15 miles of the release site. However, one was killed at Twin Lakes, west of Anaconda about 35 miles south and west of the release site.

One return was received from the Prison Ranch transplant in 1964. It was taken from Jones Mountain in the Gold Creek area.

Five returns were from elk planted in the Olson-Foster Creek Area. One was from the 1964 release and four from the 1965 transplant. These were all taken within a 15 mile radius of the transplant site.

One return was from an elk release at Clancy in February 1965. It was killed 10 miles southeast of Deer Lodge in October, 1966.

A total of 15 native elk were trapped and tagged at three Bitterroot trap locations during the 1966-67 winter. Tagging data are shown in Table 32. The elk were fitted with plastic-covered collars to permit field identification.

A total of 63 Yellowstone elk was released in two areas during the winter (Table 33). Thirty-five were released on the E-C Game Range, and 28 at Garrity Mountain about five miles west of Anaconda.

GAME DAMAGE

Six cases of game damage were recorded during the year. Five cases involved elk damage to haystacks and one was elk damage to pasture. Hunting districts in which damage occurred were: 28.1, 281, 210, 29 and 212.

Recommendations

- 1 - The current (Cole) range survey method for grass ranges does not yield much composition or trend data. To correct this shortcoming it is recommended that a Parker pace transect be run in conjunction with the present method.
- 2 - Observations on grass use as affected by salt placement on the Blackfoot-Clearwater Game Range should be continued until definite conclusions are obvious.
- 3 - The Prison Ranch management should be requested to reduce livestock grazing on the mountain slopes to leave more winter forage for elk.
- 4 - Hunting seasons should be designed for a greater deer harvest in the Blackfoot and Deer Lodge units.
- 5 - Consideration should be given to eliminating the St. Regis checking station since the number of animals checked is relatively small.
- 6 - Bighorn sheep hunting permits for the Rock Creek area should be terminated if the herd continues to decline.

- 7 - An aerial census and production survey of antelope in the Deer Lodge Valley should be made.
- 8 - More information on goat populations in some areas of questionable status such as Rattlesnake Creek and the North Flint Range should be obtained.
- 9 - Data in the A-1 report on range conditions, harvest, and populations should be tabulated by hunting districts to facilitate use of the information for formulating hunting recommendations.

Prepared by Reuel G. Janson

Approved by Wynn G. Freeman

Date November 21, 1967

Table 1. Bunchgrass condition and trend on key elk winter ranges

Location	Plot no.	Year	Spec.	No. plants	Form	class-%	Condition	Density index- ft.	Max. leaf height	% with seed	
							rating				
<u>Blackfoot Game Mgt. Unit</u>											
<u>District 28</u>											
B-C Game Range	245	1964	Fesc	100	31	1	68	Poor	.84	1.07	39
		1965	Fesc	100	16	1	83	V. poor	.99	1.00	16
		1966	Fesc	100	28	2	70	Poor	1.00	.91	54
B-C Game Range	274	1964	Fesc	100	80	2	18	Excellent	1.03	1.48	37
		1965	Fesc	100	64	3	33	Good	.96	1.34	43
		1966	Fesc	100	60	5	35	Good	.72	1.19	62
B-C Game Range	New	1966	Fesc	19	0	5	95	V. poor	--	.63	16
		1966	Feid	51	61	16	23	Good	--	.31	45
		1966	Agsp	30	37	13	50	Fair	--	.86	53
		1966	Total	100	42	13	45	Fair	.19	.53	40
<u>District 29</u>											
Baldy Mountain	212	1964	Fesc	100	82	0	18	Excellent	.36	1.17	72
		1965	Fesc	100	68	10	22	Good	.53	1.01	11
		1966	Fesc	100	56	2	42	Fair	.48	1.10	19
<u>District 281</u>											
<u>Lewis & Clark</u>											
Pass	25	1964	Fesc	100	10	3	77	Poor	.80	.75	3
		1965	Fesc	100	34	10	56	Fair	1.07	.73	6
		1966	Fesc	100	10	5	85	V. poor	.76	.79	59
Telephone Ridge	26	1965	Fesc	43	19	9	72	Poor	.98	.57	7
		1966	Fesc		6	2	92	V. poor	1.08	.60	55
<u>Markham</u>											
Mountain		1966	Fesc	27	19	7	74	Poor	--	.56	33
		1966	Feid	48	67	10	23	Good	--	.31	71
		1966	Agsp	25	56	8	36	Good	--	.93	56
		1966	Total	100	51	9	40	Good	.19	.53	58
<u>Deer Lodge Mgt. Unit</u>											
<u>District 210</u>											
Hogback Ridge		1964	Total	141	48	21	31	Good	.25	--	26
		1965	Total	65	37	8	55	Fair	.24	--	36
		1966	Fesc	19	0	0	100	V. poor	--	.81	42
			Feid	71	27	1	72	Poor	--	.30	77
			Agsp	10	10	30	60	Fair	--	.96	30
			Total	100	20	4	76	Poor	.18	--	64
<u>District 211</u>											
<u>Lone Pine Ridge</u>											
Lower		1964	Fesc	100	7	3	90	V. poor	.57	.71	58
		1965	Fesc	50	10	6	84	V. poor	.85	.85	6
		1966	Fesc	100	4	2	94	V. poor	.55	.61	36
<u>District 212</u>											
<u>South Am. Park</u>											
Robinson Park		1964	Fesc	100	15	0	85	V. poor	.76	.52	45
		1965	Fesc	100	5	0	95	V. poor	.72	.52	--
		1966	Fesc	100	10	0	90	V. poor	.78	.46	--
		1964	Fesc	100	27	0	73	Poor	.55	.76	50
		1965	Fesc	100	11	1	88	V. poor	.68	.68	--
	1966	Fesc	100	22	0	78	Poor	.46	.57	--	

Table 1. Bunchgrass condition and trend on key elk winter ranges (continued)

Location	Plot		No. plants	Form class-%			Condition rating	Density	Max.	% with seed	
	no.	Year Spec.		Norm.	Yng.	HC&CE		index-ft.	leaf height		
Robinson-Elk	1964	Feid	100	45	1	54	Fair	.77	.34	50	
	1965	Feid	100	28	10	62	Poor	.77	.34	--	
	1966	Feid	50	46	0	54	Fair	.38	.22	--	
District 213											
Modesty Ridge	111	1964	Fesc	100	58	4	38	Good	.43	1.03	--
	111	1966	Fesc	50	10	2	88	V. poor	.95	.45	--
Stucky Ridge	818	1964	Feid	50	76	8	16	Excellent	.43	.45	
	818	1966	Feid	50	82	0	18	Excellent	.90	.34	
BLM land	103	1964	Fesc	50	78	8	14	Excellent	.25	1.25	
	103	1966	Fesc	50	96	0	4	Excellent	.62	1.26	

Table 2. Grass utilization on winter elk ranges

Sample Unit	Plot No.	Year	Species	No. plants	% grazed	% Util.	Pellet group/acre Deer	elk	other
<u>Clark Fork Unit</u>									
<u>Hunting Dist. 23</u>									
Petty Pasture		1964	Agsp	100	66	27	40	140	
Petty Pasture		1967	All	100	28	18	5	70	
<u>Blackfoot Unit</u>									
<u>Hunting Dist. 28</u>									
B-C Game R.-upper	245	1965	Fesc	100	64	48	0	160	0
	245	1966	Fesc	100	55	41	0	180	0
		1967	Fesc	100	64	48	0	146	0
B-C Game R.-Lower	274	1965	Fesc	100	14	10	0	40	0
	274	1966	Fesc	100	2	1	3	18	0
	274	1967	Fesc	100	7	5	2	32	-
W. Slope Sperry Mtn.		1967		100	54	41	0	452	0
<u>Hunting Dist. 281</u>									
Markham Mtn.		1967	Fesc	100	54	41	260	426	-
Karshaw Mtn.		1967	Fesc	100	74	55	136	184	-
L. & C. Pass		1965	Fesc	100	38	29	10	135	-
		1966	Fesc	50	60	45	0	266	-
		1967	Fesc	100	48	36	0	436	-
Telephone Ridge		1965	Fesc	100	86	65	0	605	60 cow
		1966	Fesc	50	62	46	14	180	-
		1967	Fesc	100	56	42	75	445	-
Silver King Ridge		1967	All	100	64	49	80	715	-
<u>Hunting Dist. 29</u>									
Baldy Mtn.		1965	Fesc	100	17	12	20	95	-
		1966	Fesc	100	16	11	28	82	-
		1967	Fesc	100	8	5	20	88	-
<u>Deer Lodge Unit</u>									
<u>Hunting Dist. 210</u>									
Babcock Mtn.		1966	All	50	24	15	20	60	
Spring Cr., Mid-hill		1966	All	50	56	42	40	470	
		1967	Fesc	50	56	42	120	340	
Spring Cr, E. Hill		1966	All	50	54	41	80	620	
		1967	Fesc	50	36	27	20	260	
Hogback Ridge		1965	Agsp) Feid)	100	54	41	0	580	
Hogback Ridge		1966	All	75	71	56	20	700	
Hogback Ridge		1967	All	150	67	52	30	700	
Lower Stony Cr.	S-1	1965	Agsp	25	32	12	50	90	
Lower Stony Cr.	S-1	1966	Agsp	25	24	10	50	40	10 moose
Lower Stony Cr.	S-1	1967	Agsp	25	40	16	30	100	
Stony Cr. Ridge	S-3	1965	Agsp	25	40	16	140	180	
Stony Cr. Ridge	S-3	1966	Agsp	25	92	38	120	560	
Stony Cr. Ridge	S-3	1967	Agsp	25	80	33	50	220	
<u>Dist. 211</u>									
Lone Pine Ridge	1-A	1965	Fesc	25	100	75	-	730	
Lone Pine Ridge	1-A	1966	Fesc						
Lone Pine Ridge	1-A	1967	Fesc	25	100	75	-	550	
Potato Lakes		1967	Fesc	25	92	70	-	220	

Table 2. (continued)

Sample Unit	Plot	Year	Species	No.	%	%	Pellet groups/acre		
	No.			plants	grazed	util.	Deer	Elk	Other
<u>Dist. 212</u>									
Six-Mile Hill		1965	Fesc	50	88	67	48	240	
		1966	Fesc	50	100	75	60	310	
		1967	Fesc	25	96	72	--	360	180 cow
Fred Burr Cr.		1965	All	45	62	47	72	396	
		1966							
		1967	All	50	60	46	120	320	
So. America Park		1965	Fesc	100	85	65	10	216	
		1966	Fesc	100	76	57	5	160	
		1967	Fesc	100	75	56	0	240	
Robinson Park		1965	Fesc	100	88	67	0	330	
		1966	Fesc	100	59	44	0	360	
		1967	Fesc	100	70	53	0	270	
Taylor Park		1965	All	100	85	66	0	140	
		1966	All	100	32	20	5	260	
		1967	All	100	72	56	0	355	
<u>Dist. 213</u>									
Modesty (Exclos)		1965	Fesc	50	30	22	--	10	140 horse
		1966	Fesc	50	90	68	0	0	horse, cow
		1967	Fesc	100	56	42	0	20	horse, cow
Modesty (N. ridge)		1967	Fesc	100	67	50	0	120	cow

Table 3. Relative forage consumption by cattle and elk on Prison Ranch winter elk range, 1966-67

Sample Unit	Grass species	Percent utilization		% used by	
		Fall '66	Spring '67	Cattle	Elk
So. America Park	Fesc	38	56	38	18
Robinson Park	Fesc	55	55 (52)*	55	0
Taylor Park	All	60	60 (54)*	60	0
Ave.		51	57	51	6

*Percentage utilization based on observation believed to be lower than actual use because of the new growth and the attendant difficulty of distinguishing grazed old growth.

Table 4. Browse transect data, 1967

Hunting district & transect location	Plot No.	Key spec	No. plants	% Class 3 & 6	Leader Use %	Percent decadent	Pellet groups/A		
							Deer	Elk	Others
Clark Fork									
District 20.1									
Burnt Flats Cr.		Amal	25	68	76	56	10	300	
Tamarack Creek		Amal	25	12	17	8	112	200	14 cow
Tamarack Hill		Amal	25	16	26	16	186	-	-
Jermyn Ranch		Amal	25	36	23	28	188	-	-
Patrick Creek	909	Amal	25	52	25	40	190	7	46 cow
Patrick Creek Exclos.		Amal	25	12	55	4	520	20	26 cow
Boyd Mtn.-Foraker	908	Amal	25	72	77	44	300	20	-
Boyd Mtn.-Drexel	906	Amal	25	52	57.4	0	160	20	-
Powder House Sprg.		Amal) Prvi)	25	36	48	52	94	7	-
Total & average			225	40	45	28	196	64	
District 20									
Beacon Hill		Amal	25	56	67	24	194	94	-
Keystone-Dry Gulch	907	Prvi	25	68	72	64	230	100	
Second Creek		Amal	25	0	3	4	210	40	
Micayune Gu.	902	Prvi	25	32	1	52	20	40	
So. Nemote Cr.	901	Amal	25	0	5	8	45	10	
Crystal Sprgs.		Amal	25	8	10	20	-	-	-
Freezeout Gulch		Amal	25	56	76	48	250		
Nigger Gulch	810	Amal	25	76	88	88	820	0	
Kirchay Cr.		Not done							
Eddy Creek		Amal	25	60	84	80	500	20	-
Soudan		Amal	25	80	90	84	240	0	
Deep Creek		Amal	25	0	2	0	30	0	
Total & average			275	40	45	43	254	30	
District 21									
Fournier Creek	950	Amal	25	8	45	8	200	-	
Six-Mile Creek	951	Amal	25	16	4	20	60		
Butler Cr.-Upper	945	Amal) Prvi)	25	60	71	48	120	60	100 cow
Butler Cr.-Lower	1001	Amal	25	80	67	76	240		
Remount Pasture	1000	Amal	25	20	61	24	200		
Ellis Creek	944	Amal	25	24	33	28	100	20	-
Ninemile Hill	943	Amal	25	92	77	88	180		
Total & average			175	43	51	42	157	11	
District 22									
Whisky Gulch	904	Amal	25	0	13	12	40	60	
Trout Cr. Burn		Amal	25	48	63	48	280	60	
Dry Creek-Marble	905	Amal	25	60	37	68	160	4	
Dry Creek-N.Excl.	507	Amal	25	48	21	52	100	0	
Dry Creek-S.Excl.		Amal	25	80	15	92	40	0	
Fish Cr.-Blacktail	506	Amal	25	20	44	16	130	30	-

Table 4. Browse transect data, 1967 (Continued)

Hunting district & transect location	Plot No.	Key spec.	No. plants	% Class 3 & 6	Leader use %	Percent decadent	Pellet groups/A		
							Deer	Elk	Others
District 22, cont'd									
Trail Cr.-East	505	Amal	25	16	50	8	130	0	
Trail Cr.-West	955	Amal	25	8	41	0	260	20	
Clearwater Crsg.		Amal	25	8	3	20	10	20	
Cold Cr.-Upper		Not done							
Cold Cr.-Lower	510	Amal	25	60	18	52	120	234	
Little Joe Cr.		Not done							
Murphy Cr.(Casey R.)		Amal	25	12	7	20	120	0	
Thompson Creek		Amal	25	8	90	8	130	0	
Thompson Peak Rd.		Amal	25	48	30	56	60	60	
Johnson Ranch	509	Amal	25	28	46	24	120	140	
Total & average			350	32	34	34	124	45	
District 23									
Holloman Cr.		Amal) Prunus)	50	18	24	24	160	14	20 moose 4 horse
Woodchuck Gulch		Putr	25	16	8	24	110	0	
Bear Run Cr.	212	Putr	25	24	41	44	94	0	
Little Park Cr.		Amal) Putr)	41	2	24	32	94	0	
Golder Road		Amal) Prvi)	20	0	56	5	100	180	
Deadman Gulch	932	Amal	25	40	11	76	54	0	
Hayes Cr.Ridge	933	Amal	25	4	10	20	60	20	
Deep Creek	934	Amal	10	0	32	0	80	0	
Albert Creek		Amal	25	12	25	12	180	140	
West Fork Petty		Amal) Prvi)	45	5	24	2	180	180	
Petty Pasture		Amal	25	8	26	24	130	40	
Tank Creek		Amal	25	4	30	28	120	80	
Sawmill Gulch		Amal	25	0	27	12	50	0	
Helean Landing	941	Amal	25	24	12	16	40	0	
Wall Creek	942	Amal	25	12	87	0	290	0	
Wig Creek		Not done							
W.Fk,Butte-lower	927	Amal	25	0	4	0	40	0	
W.Fk,Butte-middle		Amal	20	35	54	45	60	40	
W.Fk,Butte-upper		Amal	20	30	81	20	300	0	
Camp Cr.-lower		Amal	25	36	59	36	90	0	
Clark Cr.-lower		Amal	25	32	12	52	80	20	40 cow
Burdette Cr.-lower		Amal	25	0	6	0	6	120	
Burdette Cr.-Middle		Amal	25	36	37	44	60	220	
Burdette Cr.-upper		Amal	25	56	32	80	20	220	
Total & average			606	17	31	26	104	55	
Bitterroot Unit									
District 24									
Sweeney Cr.		Amal	25	25	64	16	210	240	
Larry Cr.	204	Amal	25	16	66	24	360	240	
Smith Cr.		Amal	20	15	54	50	130	80	
Cow Cr.		All	25	12	28	52	120	10	20 horse
Roaring Lion		All	25	8	28	88	90	40	

Table 4. Browse transect data, 1967 (cont'd)

Hunting district & transect location	Plot No.	No. spec.	% Class plants 3 & 6	Leader use %	Percent decadent	Pellet groups/A		
						Deer	Elk	Others
Bitterroot Unit (cont'd)								
District 24								
Lost Horse		Amal	25	16	70	24	170	40
Lake Como		Putr	25	16	9	36	20	20
Bear Creek	208	Amal	25	4	1	28	34	0
Total & average			195	14	40	39	142	84
District 25								
Chaffin Cr	211	Putr	25	32	31	24	66	100
Pierce Cr.		Ceve)	30	0	65	57	500	100
		Amal)						
Opposite Trapper Cr.		Putr	25	0	4	60	100	0
Beavertail cr.		Amal)	25	0	11	72	150	200
		Prvi)						
Lavene Cr.		All	25	7	43	36	100	50
Haley Chute		Cele	25	84	71	84	100	180
Total & average			155	21	38	56	169	105
District 26								
Eight-Mile Cr.	201	Amal	25	24	3	32	-	-
Willow Cr.(TerraVerde)		Amal	25	20	3	28	180	0
Sawmill Cr.		Amal	10	10	1	40	-	-
Ambrose Cr.	203	Amal	25	4	3	32	40	40
Threemile Cr.	202	Amal	25	16	29	16	20	20
B-R Game Range		Amal	25	0	1	32	74	34
Skalkaho Cr.		Putr	25	28	36	44	-	-
Total & average			160	15	11	32	79	24
District 27								
Jennings Hill	511	Putr	25	28	82	84	280	140
Kelly Hill	879	Putr	25	72	90	48	420	180
Spring Gulch		Putr	25	60	84	44	460	46
Franklin Gulch		Putr	25	4	12	72	80	0
Whisky Gulch		Putr	25	0	40	72	140	0
Robbins Gulch	210	(Putr	25	16	7	56		
		(Cele	25	28	12	64	100	0
Spring Gulch(Rye)		All	25	60	69	64	20	200
							10	moose
Burke Gulch	209	Putr	25	24	18	32	30	20
Harlan Gulch		Putr	25	20	29	68	130	130
Jack Creek		Putr	25	8	30	88	130	120
Dugout Creek		Putr	25	4	17	16	50	20
Deer Hollow		Putr	25	0	1	68	30	0
Total & average			325	25	38	60	156	71
Blackfoot								
District 28								
O'Keefe Cr.		Amal	25	30	86	28	120	40
TV Mtn.	935	Amal	25	16	36	32	220	0
Rattlesnake Cr.		Prvi)	39	59	56	59	260	0
		Amal)					0	cows

Table 4. Browse transect data, 1967 (cont'd)

Hunting district & transect location	Plot no.	Key spec.	No. plants	% Class 3 & 6	Leader use %	Percent decadent	Pellet groups/A		
							Deer	Elk	Others
District 28									
Marco Flat	211	Prvi)	34	3	16	24	20	0	60
		Amal)							horse
Twin Creek	210	Amal	25	4	18	24	194	0	-
McNamara Landing	206	Amal	25	0	17	12	20	0	-
Belmont	207	Amal	25	36	63	48	80	0	-
Woodchuck	957	Amal	25	4	29	32	80	40	-
Camp 9-upper	812	Amal	25	32	83	40	480	0	-
Camp 9-lower		Amal	25	56	80	28	420	0	-
B.C.G.R.-upper	954	Amal	25	28	28	20	120	230	-
B.C.G.R.-lower	817	Amal	25	40	49	24	50	210	-
Sperry Grade		Amal	25	28	85	64	266	0	-
Oscars Landing	952	Amal	25	88	83	52	250	50	-
Salmon L. Hills	517	Amal	25	72	90	48	240	0	-
Placid Lake	208	Prvi	25	12	76	16	60	50	-
Shanley Cr. upper		Not done							
Shanley Cr., lower		Amal	25	8	29	28	80	66	-
Ovondo Mtn.		Amal	25	80	71	60	40	426	-
McCabe Cr.		Amal	25	90	56	20	140	70	-
Total and average			498	36	55	35	165	62	-
District 29									
Nevada Cr.	959	Prvi)	20	5	50	5	100	40	-
		Amal)							
Upper Nevada Cr.	D-4-11	Amal	25	64	52	64	410	0	-
Lower Nevada Cr.	D-4-9	Amal	25	38	42	50	68	4	-
Deer Creek	D-4-21	Prvi	25	32	36	32	230	0	-
Mulkey Gulch		Putr	25	100	89	72	380	0	-
Cramer Creek	808	Amal)	25	0	0	27	0	0	-
		Prvi)							
Nimrod		Putr	25	64	82	88	206	-	-
Rattler Gulch	600	Putr	25	96	89	76	450	-	-
Hoover Cr.	516	Putr	25	88	56	80	190	-	-
Carten Cr.		Not done							
Warm Springs Cr.	528	Putr	25	96	77	68	160	-	-
Poorman Ridge	D-4-10	Prvi	25	40	86	56	246	0	-
Poorman Cr.-Lower	36	Prvi	25	24	70	36	140	20	-
Poorman Cr.-upper	D-4-3	Amal	25	24	27	20	-	-	-
Fish Cr. Ridge		Amal	25	80	69	72	214	140	-
Bear Creek		Putr	25	20	85	84	390	0	-
Hogum Cr.	D-4-14	Amal	25	40	40	100	80	125	20 cow
Cap.Wallace Cr.		Amal	25	0	12	40	60	60	-
Wallace Creek		Amal	25	0	7	4	80	0	-
E. Beavertail Hill		Prvi)	25	52	47	52	286	0	-
		Amal)							
Little Bear Cr.		Prvi	25	48	47	48	166	0	-
Total & average			495	46	53	54	203	20	-
District 280									
North Fork E. side		Acgl	25	44	38	44	140	90	-
North Fork W. side		Acgl	25	28	15	80	70	10	-
Dry Fork No. 1		Salix	25	4	17	4	0	60	80 horse
Dry Fork No. 2		Salix	25	4	48	4	0	100	-

Table 4. Browse transect data, 1967 (cont'd)

Hunting district & transect location	Plot No.	Key spec	No. plants	% Class 3 & 6	Leader use %	Percent decadent	Pellet groups/Acre Deer	Elk	Others
McDermott Gr.		Aegl) Amel)	25	16	17	40	20	7	
Total & average			125	19	27	34	46	53	
District 281									
Mineral Mtn.	806	Amal	25	28	76	60	320	50	
Lincoln Canyon-lower	958	Amal	25	76	85	28	-	-	
Lincoln Canyon-upper	D-4-6	Amal	25	40	64	60	266	5	
Karshaw Mtn.	D-4-12	Amal	25	52	79	80	275	10	
Total & average			100	49	76	57	287	22	
<u>Deer Lodge Unit</u>									
<u>District 210</u>									
Schwartz Cr.	928	Amal) Prvi)	37	41	37	51	154	0	
Kitchen Cr.		Prvi)	25	16	43	56	100	0	
Brewster Cr.		Amal) Prvi)	42	19	15	69	34	34	
Welcome Cr.		Amal) Prvi)	50	64	50	87	72	0	0
Grizzly Cr.		Amal) Prvi)	30	37	6	47	7	0	
Picket Gulch		Amal) Prvi)	25	32	68	56	230	0	
Moose Gulch		Artr)	25	12	13	16	180	80	
Babcock Cr.		Amal)	25	36	37	-	120	70	20
W.Fk. Buttes		Artr)	25	20	34	32	100	0	
Smart Creek		Amal) Prvi)	25	32	50	68	180	0	
Mallard Gulch		Artr)	25	52	41	44			
		Chna)	25	96	97	96	440	0	
Sheep-Windlass		Not done							
Total & average			359	38	41	57	147	17	
District 212									
Boulder Cr.		Cele	25	100	90	96	320	0	
So. Boulder Cr.									
Stewart Lake Rd.									
Racetrack Cr.	948	Prvi) Amal)	42	50	85	84	1120	60	-
Fred Burr		Prvi)	25	48	42	64	120	320	-
Douglas Cr.									
Pikes Peak Cr.									
Total & average			92	66	72	81	520	127	
District 213									
Foster Creek	936	Prvi) Amal)	25	44	61	80	60	0	
Tin Can Gulch	937	Prvi) Amal)	25	40	55	48	60	0	

Table 4. Browse transect data, 1967, (cont'd)

Hunting district & transect location	Plot Key No.	No. spec.	No. plants	% Class 3 & 6	Leader use %	Percent decadent	Pellet groups/A		
							Deer	Elk	Others
Tin Can Gulch	937	Acgl	20	15	65	70			
Lost Creek	938	Prvi	23	84	80	96			
		Acgl	10	30	78	90	360	0	
Total & average			103	43	68	77	160	0	
District 214									
E.Fk. Reservoir		Prvi)	25	64	47	84	130	10	
		Amal)							
District 215									
Little Blackfoot-upper	939	Putr	25	76	84	68	300	0	-
Little Blackfoot-lower		Putr	25	96	84	96	360	20	-
Baggs Creek		Putr	50	56	88	78	380	0	
Dry Cottonwood-upper		Putr	25	12	65	48	190	80	
Dry Cottonwood-lower		Putr	25	8	67	84	454	34	
Total & average			150	50	78	75	337	45	

Grand total and Ave.

4413 32.9 44.2

Table 5. Browse condition and utilization by hunting districts, 1965-1967

Hunting district	Year	No. plots	No. plants	% class 3 & 6	Condition class	Leader use-%	Percent decadent	Pellet groups/acre	
								Deer	Elk
20	1965	10	270	60	V.Poor	63	48	307	28
	1966	9	225	51	V.Poor	59	51	192	40
	1967	11	275	40	Poor	45	43	254	30
20.1	1965	8	200	77	V.Poor	84	53	243	77
	1966	8	200	41	Poor	64	49	263	68
	1967	9	225	40	Poor	45	28	196	64
21	1965	7	175	54	V.Poor	43	61	132	38
	1966	7	175	43	Poor	41	50	70	72
	1967	7	175	43	Poor	51	42	157	11
22	1965	14	300	47	Poor	39	37	141	134
	1966	15	375	31	Poor	40	34	98	65
	1967	14	350	32	Poor	34	34	124	45
23	1965	23	545	33	Poor	46	37	83	56
	1966	23	585	33	Poor	32	46	60	40
	1967	24	606	17	Good	31	26	104	55
24	1965	8	235	30	Fair	62	47	152	54
	1966	8	200	17	Good	42	41	113	75
	1967	8	195	14	Good	40	39	112	84
25	1965	6	200	31	Poor	37	54	83	110
	1966	6	275	22	Fair	32	47	117	57
	1967	6	155	21	Fair	38	56	169	105

Table 5. (continued)

Hunting district	Year	No. plots	No. plants	% class 3 & 6	Condition Class	Leader use-%	Percent decadent	Pellet groups/A	
								Deer	Elk
26	1965	6	150	26	Fair	25	45	66	42
	1966	5	125	15	Good	4	28	15	2
	1967	7	160	15	Good	11	32	79	24
27	1965	10	300	33	Poor	58	43	179	62
	1966	10	250	21	Fair	44	52	105	33
	1967	12	325	25	Fair	38	60	156	71
28	1965	19	453	41	Poor	59	38	107	76
	1966	18	465	42	Poor	40	46	90	54
	1967	18	473	38	Poor	57	35	169	62
29	1965	10	240	58	V.Poor	70	60	206	4
	1966	17	400	51	V.Poor	38	54	102	12
	1967	19	495	46	Poor	53	54	203	20
280	1966	4	125	13	Good	23	20	35	46
	1967	5	125	19	Good	27	34	46	53
281	1965	4	95	35	Poor	70	48	241	59
	1966	4	100	54	V.Poor	63	50	-	-
	1967	4	100	49	Poor	77	57	287	22
210	1965	7	205	26	Fair	26	30	126	3
	1966	10	245	28	Fair	18	39	112	10
	1967	11	359	38	Poor	41	57	147	17
212	1965	2	45	85	V.Poor	53	90	150	15
	1966	4	95	59	V.Poor	31	79	113	18
	1967	3	92	66	V.Poor	72	81	520	127
213	1965	3	55	49	Poor	48	44	160	0
	1966	3	65	50	Poor	9	74	65	0
	1967	3	103	43	Poor	68	77	160	0
214	1965	1	25	64	V.Poor	43	72	200	0
	1966	1	25	92	V.Poor	41	96	-	-
	1967	1	25	64	V.Poor	47	84	130	10
215	1965	4	125	73	V.Poor	81	56	395	53
	1966	4	100	75	V.Poor	66	83	138	0
	1967	5	150	50	Poor	78	75	337	45

Table 6. Numbers of big game animals and hunter trips recorded at District Two checking stations

Station	Year	Elk	Mule deer	W.T. deer	Bear	Hunter trips
St. Regis	1965	122	65	35	3	-
	1966*	153	45	40	4	1657
Darby	1964	212	141	6	15	1966
	1965	307	172	5	3	2252
	1966	398	253	3	9	2117
Bonner	1964	148	93	163	27	2063
	1965	162	205	215	1	2349
	1966	181	175	139	8**	1668

* Includes 39 elk, 17 mule deer, 14 whitetails and 1 black bear checked on weekends on the "cut-off" road.

** Includes 2 grizzly bears

Table 7. Distribution of elk and deer harvest checked at St. Regis station, 1965 and 1966.

Species	Year	Dist. 20		Dist. 20.1		Dist. 22		Unknown		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%
Elk	1965	4	3	62	51	54	44	2	2	122	100
	1966	3	2	100	65	50	33	0	0	153	100
Mule deer	1965	1	2	32	49	28	43	4	6	65	100
	1966	3	7	17	38	25	55	0	0	45	100
W.T. Deer	1965	7	20	21	60	6	17	1	3	35	100
	1966	7	18	22	55	11	27	0	0	40	100

Table 8. Time distribution of the 1966 elk and deer harvest checked at the St. Regis station

Period	Elk		Mule deer		W.T. deer	
	No.	%	No.	%	No.	%
Sept. 24-25	33	22	4	9	2	5
Sept. 26-Oct. 9	20	13	3	7	2	5
Oct. 10-23	16	10.5	5	11	7	17.5
Oct. 24-Nov. 6	11	7	3	6	5	12.5
Nov. 7-20	27	17.5	14	31	11	27.5
Nov. 21-27	24	16	14	31	11	27.5
Nov. 28-Dec. 4	22	14	2	4	2	5
Total	153	100	45	100	40	100

Table 9. Sex-age composition of the elk and deer harvest checked at the St. Regis station, 1966

Species	Ad. males		Ad. Females		Young		Total	Ratio/100 ad. fem.	
	No.	%	No.	%	No.	%		Ad. males	Young
Elk	67	44	66	43	20	13	153	102	30
Mule deer	28	62	14	31	3	7	45	200	21
W.T. deer	24	60	11	28	5	12	40	218	45

Table 10. Sex-age composition of the elk harvest checked at the St. Regis station, by time periods, 1966

Area	Period	Males	Fem.	Yg.	Total		Ratio/100 ad. fem.	
					No.	%	A.Males	Young
District 20	10/24-11/6	3	0	0	3	100	-	-
District 20.1	9/24-25	9	8	1	18	18	113	13
	9/26-10/9	8	3	0	11	11	267	-
	10/10-23	2	5	1	8	8	40	20
	10/24-11/6	2	1	0	3	3	-	-
	11/7-20	7	10	5	22	22	70	50
	11/21-27	4	9	3	16	16	44	33
	11/28-12/4	7	10	5	22	22	44	50
Total season		39	46	15	100	100	85	33
District 22	1/24/-25	10	4	1	15	30	250	25
	9/25-10/9	6	3	0	9	18	200	-
	10/10-23	4	3	1	8	16	133	33
	10/24-11/6	1	3	1	5	10	33	33
	11/7-20	2	2	1	5	10	100	50
	11/21-27	2	5	1	8	16	40	20
	11/28-12/4	-	-	-	-	-	-	-
Total season		25	20	5	50	100	125	25
Total station		67	66	20	153	100	102	30

Table 11. Age composition of adult elk and deer checked at St. Regis as indicated by dentition

Species	Sex	Yrlg.		2 $\frac{1}{2}$ yr		Prime		Old		Total	Yrlg per 100 older	Old per 100 other
		No.	%	No.	%	No.	%	No.	%			
Elk	Male	10	28	4	11	21	58	1	3	36	39	3
	Female	5	15	2	6	25	76	1	3	33	18	3
	Both	15	22	6	9	46	67	2	3	69	28	3
Mule deer	Male	5	25	1	5	12	60	2	10	20	33	11
	Female	1	14	0	-	6	86	0	0	7	17	0
	Both	6	22	1	4	18	66	2	7	27	29	8
W.T. deer	Male	7	39	1	6	10	55	0	-	18	39	0
	Female	2	40	0	-	3	60	0	-	5	40	0
	Both	9	39	1	4	13	67	0	-	23	39	0

Table 12. Distribution of male elk & deer by antler classes, St. Regis, 1966

Species	Spike		2 pt.		3 pt.		4 pt.		5 pt.		6 pt.		7 pt.		Tot.	Yrlg/100 older*
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	
Elk	11	18	0	-	2	3	7	12	20	33	18	30	2	3	60	22
Mule deer	2	25	0	-	0	-	3	38	2	25	1	12	0	-	8	33
W.T. deer	4	44	0	-	1	11	3	33	1	11	0	-	0	-	9	80

* Assuming spikes and 2-points are yearlings

Table 13. Distribution of elk & deer harvest checked at Bonner station 1964-66

Species	Year	E-C Game R.		Rest of D. 28		Dist. 29		Dist. 280		Dist. 281		Total
		No.	%	No.	%	No.	%	No.	%	No.	%	No.
Elk	1964	51	34	58	39	31	21	3	2	5	3	148
	1965	8	5	112	71	24	15	5	3	9	6	158
	1966	45	25	82	45	46	25	4	2	4	2	181
Mule deer	1964	0	0	55	59	30	33	0	0	7	8	92
	1965	4	2	110	54	75	37	2	0	14	7	205
	1966	2	1	91	52	81	46	0	0	1	1	175
W.T. Deer	1964	17	11	89	55	50	31	0	0	5	3	161
	1965	10	4	142	66	49	23	0	0	14	7	215
	1966	10	7	82	60	38	28	1	1	5	4	139*

* Includes 3 from unknown locations

Table 14. Age-sex composition, by time periods, of elk checked at the Bonner station, 1966

Period	Bulls		Cows		Calves		Total		Bulls	Calves/
	No.	%	No.	%	No.	%	No.	%	100 cows	100 cows
Oct. 23	30	45	23	35	13	20	66	36	130	57
Oct. 24-30	6	32	10	53	3	15	19	11	60	30
Oct. 31-Nov. 6	6	40	6	40	3	20	15	8	100	50
Nov. 7-13	8	26	16	52	7	22	31	17	50	44
Nov. 14-20	11	48	9	39	3	13	23	13	122	33
Nov. 21-27	9	33	14	52	4	15	27	15	64	29
Total	70	39	78	43	33	18	181	100	90	42

Table 15. Age-sex composition, by time periods, of mule deer checked at the Bonner station, 1966

Period	Bucks		Does		Fawns		Total		Bucks/	Fawns/
	No.	%	No.	%	No.	%	No.	%	100 does	100 does
Oct. 23	14	14	10	18	1	5	25	14	140	10
Oct. 24-30	12	12	8	15	5	25	25	14	150	63
Oct. 31-Nov. 6	9	9	4	7	3	15	16	9	225	75
Nov. 7-13	27	27	9	16	5	25	41	23	300	56
Nov. 14-20	23	23	9	16	1	5	33	19	256	11
Nov. 21-27	15	15	15	27	5	25	35	20	100	33
Total	100	100	55	100	20	100	175	100	182	36

Table 16. Age-sex composition, by time periods, of white-tailed deer checked at the Bonner station, 1966

Period	Bucks		Does		Fawns		Total		Bucks/	Fawns/
	No.	%	No.	%	No.	%	No.	%	100 does	100 does
Oct. 23	14	20	10	23	12	48	36	26	140	120
Oct. 24-30	3	4	9	21	3	12	15	11	33	33
Oct. 31-Nov. 6	5	7	2	5	0	0	7	5	250	-
Nov. 7-13	13	18	5	12	2	8	20	14	260	40
Nov. 14-20	14	20	6	14	2	8	22	16	233	33
Nov. 21-27	22	31	11	26	6	24	39	28	200	56
Total	71	100	43	100	25	100	139	100	165	58

Table 17. Age composition of adult elk and deer, checked by dentition, at Bonner station, 1966.

Species	Sex	Age Class (years)								Total No.	Ylg./100 older	Old/100 other
		1 1/2		2 1/2		Prime		Old				
		No.	%	No.	%	No.	%	No.	%			
Elk	Male	11	23	9	19	24	50	4	8	48	30	9
	Female	9	24	8	22	18	49	2	5	37	35	6
	Both	20	24	17	20	42	49	6	7	85	31	8
Mule Deer	Male	30	37	15	18	37	45	0	0	82	58	0
	Female	6	19	8	25	18	56	0	0	32	23	0
	Both	36	32	23	20	55	48	0	0	114	46	0
W.T. Deer	Male	23	38	6	10	31	52	0	0	60	62	0
	Female	11	33	12	36	10	30	0	0	33	50	0
	Both	34	37	18	19	41	44	0	0	93	58	0

Table 18. District 2 deer harvest from questionnaire returns

Hunting district	year	No. hunters	% success	Deer Harvest				W.T. Deer	
				total no.	antlerless		No.	%	No.
					No.	%			
20	1964	651	44	288	121	43	129	45	
	1965	628	49	310	192	62	188	62	
	1966	265	42	110	56	54	68	67	
20.1	1964	Included in District 20							
	1965	Included in District 20							
	1966	542	46	250	121	51	132	53	
21	1964	778	48	370	174	47	295	80	
	1965	1015	52	532	263	49	407	80	
	1966	629	63	395	181	46	294	77	
22	1964	1049	46	481	199	42	242	52	
	1965	1189	52	619	377	62	317	51	
	1966	889	50	444	174	39	284	64	
23	1964	1421	41	587	243	42	311	53	
	1965	1418	43	612	255	42	357	58	
	1966	1304	55	715	397	56	411	58	
24	1964	626	29	181	82	45	77	44	
	1965	768	40	309	118	38	90	29	
	1966	770	37	281	113	40	90	32	
25	1964	542	28	153	59	39	19	13	
	1965	405	41	165	72	44	32	19	
	1966	810	43	344	142	44	31	9	

Table 18 (continued)

Hunting district	year	No. hunters	% success	total no.	Deer Harvest			
					Antlerless		W. T. deer	
					No.	%	No.	%
26	1964	376	34	129	46	43	19	18
	1965	557	50	280	61	38	9	6
	1966	463	34	158	90	57	45	28
260	1964	Data included in District 26						
	1965	Data included in District 26						
	1966	79	0	0	0	0	0	0
27	1964	486	47	228	84	37	19	8
	1965	478	46	221	68	31	33	15
	1966	591	53	315	169	54	8	3
28	1964	2173	42	908	412	46	554	63
	1965	2049	50	1029	422	41	683	66
	1966	2097	52	1094	516	48	708	66
28.1	1964	Included in District 28						
	1965	Included in District 28						
	1966	124	64	79	45	57	45	57
280	1964	203	54	110	39	36	38	35
	1965	259	49	128	52	41	46	36
	1966	260	40	105	34	32	19	18
281	1964	594	51	300	109	37	121	41
	1965	445	44	194				
	1966	468	58	269	65	24	98	38
29	1964	1674	57	962	366	38	286	30
	1965	1608	67	1081	393	38	253	26
	1966*	937	59	553	305	55	124	22
29.1 & 290	1964	Included in District 29						
	1965	Included in District 29						
	1966	595	73	437	124	29	68	16
210	1964	711	49	350	131	37	61	18
	1965	624	44	277	84	30	63	23
	1966	813	59	481	110	23	56	13
211	1964	115	52	115	15	29	4	8
	1965	58	65	38	20	54	0	0
	1966	102	45	45	11	32	0	0
212	1964	515	49	251	114	46	49	20
	1965	449	38	172	65	38	0	0
	1966	408	42	171	61	36	23	14
213	1964	116	49	57	27	48	2	4
	1965	196	40	78	9	12	0	0
	1966	98	57	56	23	40	0	0

* area divided in 1966

Table 18 (Continued)

Hunting District	year	No. hunters	% success	Deer Harvest				
				total no.	antlerless		W. T. deer	
					No.	%	No.	%
214	1964	143	37	53	13	26	0	0
	1965	262	29	75	49	65	0	0
	1966	187	70	131	23	21	11	10
215	1964	358	44	158	58	37	6	4
	1965	220	38	84	17	20	0	0
	1966	350	48	169	45	27	11	7
Tot. Dist. 2	1964	12,458	45	5618	2306	41	2239	41
	1965	12,084	51	6204	2567	42	2698	44
	1966	12,663	52	6602	2805	43	2528	39

Table 19. Time of kill of 1966 deer harvest from questionnaire returns.

Hunting District	Before	Oct 23	Nov. 5-	Nov. 19	After	Unknown	Sample no. killed
	Oct 23	Nov. 4	Nov. 18	Nov. 27	Nov. 27		
20	0	60	20	20	0	0	10
20.1	26	17	44	13	0	0	23
21	0	52	26	20	0	3	35
22	17	32	34	17	0	0	41
23	3	42	32	19	0	5	65
24	23	23	35	15	0	4	26
25	55	27	12	6	0	0	33
26	7	29	57	0	0	7	14
260	0	0	0	0	0	0	0
27	0	35	31	35	0	0	29
28	1	34	41	23	0	2	98
28.1	0	29	29	29	0	14	7
280	55	27	9	9	0	0	11
281	12	52	28	8	0	0	25
29	0	25	41	35	0	0	49
29.1	0	48	32	13	0	7	31
290	0	63	13	13	12	0	8
210	2	39	34	25	0	0	44
211	0	75	0	25	0	0	4
212	0	56	38	0	0	6	16
213	0	40	60	0	0	0	5
214	0	31	46	23	0	0	13
215	0	47	33	20	0	0	15
total	9	37	34	19	0.2	2	602

Table 20. District two elk harvest from questionnaire returns

District	year	No. hunters	%	total no.	Elk Harvest						
					No. bulls	No. spikes	No. cows	No. calves	Bulls/ 100cows	spikes/ 100bulls	calves/ 100cows
20	1964	932	28	261	95	36	104	23	126	38	22
	1965	656	43	284	53	18	65	-	109	34	-
	1966*	270	16	42	11	0	19	11	58	-	58
20.1	1964	Included in District 20									
	1965	Included in District 20									
	1966	1065	44	463	134	53	245	31	76	40	13
21	1964	590	17	590	32	9	49	12	83	28	24
	1965	502	9	47	29	-	9	9	322	-	100
	1966	347	13	45	23	11	11	0	309	48	-
22	1964	1604	25	407	142	52	173	36	112	37	21
	1965	1468	24	347	142	27	131	47	129	19	36
	1966	1501	31	467	165	31	176	84	111	19	48
23	1964	1617	18	286	77	27	133	49	78	35	37
	1965	1202	15	174	63	12	100	0	73	19	-
	1966	1130	18	204	89	0	81	34	110	-	43
24	1964	904	13	118	31	5	65	17	55	16	26
	1965	840	19	157	78	9	29	41	300	10	141
	1966	859	23	199	84	23	84	8	127	27	9
25	1964	1302	20	257	59	42	116	38	87	71	33
	1965	814	28	228	131	21	59	18	258	16	31
	1966	1463	36	525	149	50	247	68	81	34	28
26	1964	361	15	53	9	16	22	4	113	178	18
	1965	448	14	62	12	18	32	0	94	150	-
	1966	486	23	113	23	23	45	23	102	100	51
27	1964	701	22	156	67	17	49	18	171	25	37
	1965	781	26	203	38	36	74	56	100	95	76
	1966	975	38	365	110	66	147	42	119	60	29
28	1964	2200	20	440	113	67	172	83	105	60	48
	1965	1669	22	360	100	50	156	53	64	50	34
	1966	1858	29	363	152	34	113	65	165	22	58
28.1	1966	178	17	31	11	0	11	8	100	-	73
280	1964	441	26	116	43	19	42	12	147	44	29
	1965	300	32	95	12	12	42	29	57	100	69
	1966	428	23	97	36	11	39	11	120	31	28
281	1964	967	13	124	23	10	56	32	59	43	57
	1965	716	13	92	27	9	48	9	75	33	19
	1966	683	13	90	56	0	34	0	164	-	-

* Area reduced

Table 20. (continued)

District	year	No. hunters	% success	Elk Harvest							
				total no.	No. bulls	No. spikes	No. cows	No. calves	Bulls/ 100cows	Spikes/ 100bulls	Calves/ 100cows
29	1964	1306	20	262	55	30	120	51	71	71	43
	1965	1045	17	174	59	18	68	30	113	31	44
	1966*	799	27	211	65	23	102	23	86	35	23
29.1	1964	Data included in Dist.29									
	1965	Data included in Dist.29									
	1966	412	27	110	53	0	34	23	156	--	68
210	1964	691	20	136	50	13	60	14	105	26	23
	1965	581	26	151	74	--	65	12	114	--	18
	1966	738	24	178	50	36	53	39	162	68	74
211	1964	227	18	41	18	4	17	2	129	22	12
	1965	165	29	47	29	--	18	0	161	161	--
	1966	234	29	68	34	11	23	0	196	32	--
212	1964	641	20	127	48	16	50	14	128	33	28
	1965	691	26	177	53	9	88	18	71	17	20
	1966	552	17	95	23	0	50	23	46	--	46
213	1964	158	17	26	13	6	8	0	238	46	--
	1965	133	27	35	18	--	9	9	200	--	100
	1966	95	24	23	11	0	11	0	100	--	--
214	1964	186	24	44	23	0	17	4	14	--	135
	1965	127	14	18	0	9	9	0	100	--	--
	1966	270	25	68	11	11	34	11	65	100	32
215	1964	583	19	111	39	17	36	19	156	44	53
	1965	437	9	38	9	18	12	0	225	200	--
	1966	321	20	65	11	0	31	23	35	--	74
Total	1964	15,411	20	3069	936	384	1290	428	102	41	33
District	1965	12,575	21	2690	927	263	1013	331	117	28	35
	1966	14,663	26	3820	1300	383	1590	525	106	29	33

*Area reduced

Table 21. Time of kill of 1966 elk harvest from questionnaire returns

Hunting District	Before Oct. 23	Oct. 23- Nov. 4	Nov. 5- Nov. 18	Nov. 19 Nov. 27	After Nov. 27	Unknown	Sample No. Killed
20	0%	0%	25%	75%	0%	0%	4
20.1	35	7	30	23	5	0	43
21	0	50	0	25	0	25	4
22	56	16	18	11	0	0	45
23	10	50	30	10	0	0	20
24	47	16	21	11	5	0	19
25	63	16	16	2	2	2	51
26	0	60	20	20	0	0	10
27	0	44	27	30	0	0	34
28	0	52	15	33	0	0	33
28.1	0	67	33	0	0	0	3
280	80	10	0	10	0	0	10
281	0	25	50	25	0	0	8
29	5	32	37	26	0	0	19
29.1	0	50	40	10	0	0	10
210	0	22	39	39	0	0	18
211	0	17	33	50	0	0	6
212	0	78	11	11	0	0	9
213	0	50	50	0	0	0	2
214	0	50	17	33	0	0	6
215	0	50	33	17	0	0	6
Total	26	30	24	20	1	.6	360

Table 22. District Two, 1966 bear harvest from questionnaire returns.

Hunting District	No. hunters	No. bears killed			Percent Hunter success
		Black	Grizzly	Total	
20	42	0	0	0	0
20.1	81	8	0	8	10
21	34	0	0	0	0
22	284	92	0	92	32
23	140	73	0	73	52
24	283	56	0	56	20
25	205	50	0	50	24
26	90	56	0	56	63
27	176	68	0	68	39
28	328	79	0	79	22
280	99	0	0	0	0
281	82	0	0	0	0
29	113	45	0	45	40
29.1	57	11	0	11	20
210	137	53	0	53	39
211	19	0	0	0	0
212	65	0	0	0	0
213	42	11	0	11	27
214	31	0	0	0	0
215	11	0	0	0	0
Total 1966	2350	604	0	604	26
Total 1965	1869	299	1	300	16
Total 1964	2410	-	-	484	20

Table 23. District Two, 1966 harvest of moose, mountain goat & bighorn sheep.

Species	Hunting District	No. permits	No. hunters	Percent success	No. killed	No. males	No. females	No. Ad.	No. Yg.	Un-known
Moose	23	10	10	60	6	2	3	6	0	0
	24	5	5	40	2	1	0	1	0	1
	25	15	15	33	5	1	4	2	2	1
	26	5	5	40	2	0	1	1	0	1
	27	20	20	70	14	9	4	10	2	2
	29	3	3	100	3	3	0	3	0	0
	212	15	15	100	15	8	6	15	0	0
	214	5	5	100	5	0	5	2	2	1
	216	5	5	100	5	3	2	4	1	0
	217	10	10	50	5	4	1	4	1	0
	218	5	5	100	5	3	1	5	0	0
	219	15	15	93	14	10	2	12	1	1
	Total	113	113	72	81	44	29	65	9	7
Goats	24	269+	269	39	105	60	45			
	25	25	20	47	10	6	4			
	27	36+	36	33	12	8	4			
	212	10	6	40	2	2	0			
	213	3	3	66	2	0	2			
	222	45	38	72	27	19	8			
	261	5	3	100	3	2	1			
	280	15	15	23	3	3	0			
	281	10	10	50	5	3	2			
	Total	418+	400	42	169	103	66			
Sheep	25	5	5	20	1	1	0			
	220	5	5	80	4	4	0			
	Total	10	10	50	5	5	0			

Table 24. Big game harvest reported by licensed outfitters

Unit & District	No.out- fitters	Hunters			Elk				Deer				Other			Total Kills	Percent Success		
		Res.	Non res.	Tot.	Bulls	Cows	Calves	Unk.	Tot.	Bucks	Does	Fawns	Unk.	Tot.	Moose			Goats	Bear
<u>Clark Fork</u>																			
20.1	3	12	39	51	14	8	4	0	26	6	3	0	0	9			35	69	
22	3	37	54	91	20	11	4	0	35	11	4	0	0	15		2	52	57	
23	2	11	25	36	7	13	0	0	20	5	2	0	1	6			26	72	
Total C.F.	8	60	118	178	41	32	8	0	81	22	9	0	1	32		2	113	63	
<u>Bitterroot</u>																			
24	2	0	17	17	2	3	2	0	7							4	11	65	
25	7	3	56	59	18	17	3	0	38	10	6	1	1	18		1	57	97	
26	+	0	4	4	1							0					1	--	
27	2	8	20	28	10	7	5	0	22	3	3	0	0	6			28	100	
Total B.R.	12	11	97	108	31	27	10	0	68	17	9	1	1	28		4	1	101	94
<u>Blackfoot</u>																			
28	1	15	1	16	1	1			2								2	13	
280	5	5	58	63	20	8	2	6	36	10	1	0	1	12		2*	50	79	
281	-		2	2	0	0	2	0	2								2	--	
29	2	3	2	5	1	0	0	0	1	2			3	5			6	120	
29.1	-		3	3				3	3								3	--	
Total B.F.	8	23	66	89	22	9	4	9	44	12	1	0	4	17		2*	63	71	
<u>Deer Lodge</u>																			
210	1	0	6	6	1				1	1	1			2			3	50	
211	3	2	24	26	5	5	1		11	11	2		1	14		1	1	27	104
212	-	-	2	2					0		1			1				1	50
215	1	-	1	1				1	1									1	100
Total D.L.	5	2	33	35	6	5	1	1	13	12	4	0	1	17		1	1	31	89
<u>Total</u>																			
Dist. 2																			
1966	33	96	314	410	100	73	23	10	206	63	23	1	7	94	0	5	6	308	75
1965	19	84	195	279	47	50	9	1	107	29	13	1	8	55	0	3	7	172	62
1964	--	63	223	286	46	54	15	0	115	37	14	2	1	53	1	8	5	183	64

*One of these was a grizzly bear

Table 25. Deer herd sex-age composition from field classified counts 1966-67

Hunting District	Bucks	Does	Uncl. adults	total adults	Fawns	Bucks/100 does	Fawns/100 Adults
<u>White-tailed Deer</u>							
<u>Clark Fork</u>							
20.1	2	4	4	9	5	-	-
22	4	-	-	4	-	-	-
23	1	4	14	19	9	-	47
Tot. Clark Fk.	5	8	18	32	14	-	44
<u>Blackfoot</u>							
28	9	27	70	106	45	33	42
28.1	2	10	9	21	9	-	43
29	2	12	19	33	17	-	52
29.1	0	16	9	25	15	-	60
281	9	20	13	42	24	-	54
Tot. Blackfoot	22	85	120	227	110	24	49
Tot. Whitetail	28	93	138	259	124	30	48
<u>Mule Deer</u>							
<u>Clark Fork</u>							
22	2	3	6	11	5	-	45
<u>Blackfoot</u>							
28	6	8	9	23	8	-	35
28.1	6	25	35	66	27	-	41
29	10	41	175	226	110	-	49
29.1	9	66	102	177	86	-	49
281	5	39	22	66	36	-	42
Tot. Blackfoot	36	179	343	558	267	20	46
<u>Deer Lodge</u>							
210	24	35	123	182	110	-	60
212	-	1	12	13	6	-	46
214	-	-	21	21	14	-	67
215	2	5	27	34	16	-	47
Tot. Deer Lodge	26	41	183	250	146	-	58
Tot. Mule deer	64	223	532	819	418	29	51

Table 26. Elk herd sex-age composition from field classified counts, 1966-67

Hunting District	Adult bulls	Spike bulls	cows	calves	Bulls/100 cows	Spikes/100 older bulls	Calves/100 cows
<u>Clark Fork</u>							
22	-	-	24	8	-	-	33
23	2	6	51	24	16	-	47
Tot. Clark Fk.	2	6	75	32	11	-	43
<u>Blackfoot</u>							
28	1	1	27	10	-	-	37
28.1	8	17	230	74	-	-	32
29.1	7	1	24	9	-	-	38
281	9	11	50	18	-	-	36
Tot. Blackfoot	25	30	331	111	17	120	34
<u>Deer Lodge</u>							
210	9	0	7	5	-	-	-
212	1	2	15	7	-	-	-
Tot. Deer Lodge	10	2	22	12	55	-	55
Total elk	37	38	428	155	18	103	36

Table 27. Bighorn sheep counts in Rock Creek area

Year	Rams	Ewes	total adults	lambs	Uncl. sheep	Total	Rams/100 ewes	Lambs/100 ewes	Lambs/100 ads
1964-65	12	20	32	7	64	103	60	35	22
1965-66	9	29	38	8	-	46	31	28	21
1966-67*	12	27	39	8	-	47	44	30	20

* This is the cooperative count made by the University Wildlife Class and the Fish & Game Dept. Subsequent surveys (March, 1967) by two students (Aderhold & Berwick) indicated a total of 62 sheep in this area, classified as follows: 6 adult rams, 41 ewes and small rams and 15 lambs. The 47 seen during the cooperative count is believed more nearly comparable with the counts of previous years.

Table 28: Age distribution of the 1966 moose harvest in District Two hunting areas from mandible collections.

Age Class	Bitterroot*			Flint Creek **				Rock Creek***				Total
	Male	Female	Total	Male	Fem.	Unk.	Tot.	Male	Fem.	Unk.	Tot.	
1/2	0	1	1	0	0	0	0	0	1	0	1	2
1	1	0	1	0	3	0	3	1	3	1	5	9
2	2	0	2	2	1	0	3	0	0	2	2	7
3	1	0	1	2	0	0	2	0	1	0	1	4
4	0	1	1	0	1	2	3	1	0	0	1	5
5	1	0	1	1	0	0	1	2	0	0	2	4
6	0	0	0	0	1	0	1	0	0	0	0	1
7	1	1	2	0	0	0	0	0	0	0	0	2
8	0	2	2	0	0	0	0	0	0	0	0	2
9+	0	1	1	0	0	0	0	3	1	0	4	5
Unk.	0	1	1	0	1	0	1	0	1	0	1	3
Total	6	7	13	5	7	2	14	7	7	3	17	44

* Hunting district 23, 24, 25, 26, 27

** Hunting districts 29, 212, 214, 216

*** Hunting districts 217, 218, 219

Table 29: Age structure of the 1966 District Two mandible collection

Age Class	Male		Female		Unknown	Total	
	No.	%	No.	%		No.	%
District 2							
1/2	0	0	2	12	0	2	5
1	2	11	6	35	1	9	22
2-4	8	44	3	18	5	16	39
5-7	5	28	2	12	0	7	17
8+	3	17	4	23	0	7	17
Total	18	100	17	100	6	41	100
Percent	51		49				

Table 30: Ovulation rates and incidence of pregnancy in moose collections in District 2, 1966

Age	Corpora lutea			Percent Ovulating	Ovulation per cow	Embryonic tissue		Twins	
	No.	0	1			No.	%	No.	%
1/2	1	1		0	0	0		0	0
1	2	2		0	0	0		0	0
2-4	2	1	1	50	.5	0	0	0	0
5-7	2		2	100	1.0	1	50	0	0
8+	2		2	100	1.0	1	50	0	0
Unknown	4	2	1	50	.75	2	50	1	100
Tot. 1+12	5	5	1	58%	.67	3	25	1	33
Tot. 2+10	3	6	1	70%	.80	3	30	1	33

Table 31: Elk tag returns-1966

Tag Nos.	Release Data				Recovery Data	
	Sex	Age	Date	Location	Date	Location
Native elk-Bitterroot						
H5601A-02A	F	Ad.	2/66	McCoy Creek	9/24/66	½ mi. N. Tincup Cr.
H2327-28	M	Calf	2/62	Roaring Lion Cr.	9/26/66	Twelve-Mile Lake, Lost Horse Creek
H1341-42	F	Calf	1/65	B-R Game Range	10/25/66	Head Signal Cr.
H1278-80	F	Calf	3/64	So. Gird Creek	11/5/66	Gibbons Gulch B-R Game Range
H1183-84	F	Calf	2/65	Wetzsteon Ranch	10/23/66	Head of Cub Creek, E.Fk. Bitterroot
H1179-80	F	Cow	2/65	Wetzsteon Ranch	10/23/66	Head of Cub Creek
H1325-26	M		1/65	Wetzsteon Ranch	11/23/66	Sula Point
H2319-20	M	Ad.	1/62	Pasture Draw	11/12/66	Meadow-Tolan Ridge
Native elk-Blackfoot						
H4955-56	F	Calf	1/58	B-C Game Range	10/23/66	B.C. Game Range
H2054-55	M	1½	2/58	B-C Game Range	10/29/66	B.C. Game Range
H3107-08	F	Calf	1/56	B-C Game Range	11/27/66	Chamberlain Creek, ½ mi. SW Scotty Brown Bridge
Transplanted Yellowstone elk						
S2782	F	Ad.	2/64	B-C Game Range	11/19/66	Arrastra Creek
S2762	F	Ad.	2/64	B-C Game Range	11/20/66	Stewart Peak Trail, Rattlesnake Cr.
S4655-56	M	Ad.	1/67	Sperry Grade B-C Game Range	5/24/67	Highway kill ½ mi. No. Clearwater junction
S4607-08	F	Ad.	2/66	Warm Springs Cr. Powell County	11/12/66	7 mi. North of Avon
S4617-18	F	Ad.	2/66	Warm Springs Cr. Powell County	11/12/66	Meade Creek
S4975-76	M	Ad.	2/66	Warm Springs Cr. Powell County	10/30/66	Meade Creek
S4633-34	F	Calf	2/66	Warm Springs Cr. Powell County	11/26/66	Twin Lakes W. of Anaconda
S4965-66	F	Calf	2/66	Warm Springs Cr. Powell County	Fall, 1966	Elliston Area
S4987-88	F	Ad.	2/66	Warm Springs Cr. Powell County	11/13/66	One mi. above falls Warm Springs Creek
S4979-80	M	1½	2/66	Warm Spring Cr. Powell County	10/23/66	Gallagher Creek ¼ mi. NW. of Avon
S1941	M	Calf	2/64	State Prison Ranch	11/25/66	Gladstone Gu NW Jones Mtn, Gold Cr. Area.
S2775	F	Ad.	2/64	Olson-Foster	Fall, 1966	Mill Creek Area-21½
S2238		Calf	2/65	Olson-Foster	Fall, 1966	Not obtained
S2284	F	Ad.	2/65	Olson-Foster	10/25/66	Area 212
S2288	F	Ad.	2/65	Olson-Foster	11/20/66	Trout Creek, West of Georgetown L.
S2293	M	Ad.	2/65	Olson-Foster	10/29/66	Twin Lake Creek, Storm Lake Area
81 ACQ 7913	M	Ad.	2/65	Clancy	10/26/66	10 mi. SE of Deerlodge

Table 32: Elk trapped and tagged at Bitterroot Unit trap sites, winter 1966-67

Trap Site	No. Elk				Tag Numbers
	Bulls	Cows	Calves	Total	
Wetzsteon Ranch	2	3	3	8	H2334-35 to H2346-47
Neck-band color: blue on white					H2352-53
Pasture Draw	3	1	1	5	H2354-55 to H2362-63
Neck-band color: black on green					
McCoy Creek:					
Neck-band color: White		2		2	H1762-63 to H1764-65
Totals	5	6	4	15	

Table 33: Yellowstone elk released in District Two, 1966-67

Release Location	Date	No. elk					Tag Numbers
		Bulls	Cows	Calves	Uncl.	Total	
B-C Game Range	1/27/67	18	3	10	5	35	S4641-42 to S4699-4700 S3251-52, 4 untagged
Garrity Mtn. Deerlodge Co.	3/6/67	-	4	9		13	S3035-36, S3037-39 S3040-41 to S 3048-49 S4290-91 to S 4298-99 S4392-93
Deerlodge Co.	3/9/67	2	2	11		15	S3201-02 to S3229-30

